### The Earliest Campus (1878 - 1902)

| Year Built | Building Name | Renovation | Additions | Demolition | Gross Square Feet |
|---|---|---|---|---|---|
| 1878 | Old Main | 1985, 2012 | | | 22,800 |
| 1900 | Manitou Cottage | | | 2006 | 4,192 |
| 1900 | Old Ytterboe Hall | | | 1997 | 54,000 |
| 1902 | Steensland Hall | | | | 4,150 |

### Boe Legacy (1920 - 1942)

| | | | | | |
|---|---|---|---|---|---|
| 1920 | Speech-Theater Building | | | | 37,500 |
| 1923 | Physical Plant | | 1967 | | 22,800 |
| 1925 | Holland Hall | 1969, 2016 | | | 44,685 |
| 1926 | Old Music Hall | NEED DATE | | | 13,888 |
| 1931 | Skifter Hall | 2007 | | | 11,581 |
| 1938 | Mellby Hall | | | | 49,304 |
| 1942 | Rolvaag Memorial Library | 1991 | 1966, 1992 | | 170,000 |

### After WWII (1947 - 1963)

| | | | | | |
|---|---|---|---|---|---|
| 1947 | Old Main Annex | | | 2006 | 15,000 |
| 1948 | Thorson Hall | 1994 | | | 62,264 |
| 1951 | Hilleboe Hall | | | | 31,541 |
| 1953 | Boe Memorial Chapel | 2014 | | | 28,285 |
| 1956 | Flaten Hall | | | 2006 | 24,924 |
| 1957 | Flaten Art Barn (original) | | | 2006 | 2,600 |
| 1957 | Kittelsby Hall | | | | 38,186 |
| 1959 | Kildahl Hall | 2014 | | | 31,750 |
| 1960 | Alumni Hall (was Administration Building East wing) | 2010 | | | 20,820 |
| 1960 | Hall of Music (was Administration Building West wing) | 2011 | 1986 | | |
| 1961 | Dittmann Center (was St. Olaf Center) | 2001 | | | 85,697 |
| 1961 | Hoyme Hall | 2012 | | | 47,652 |
| 1961 | Ellingson Hall | 2013 | | | 45,066 |



### The Centennial Decade (1964-1974)

| Year Built | Building Name | Renovation | Additions | Demolition | Gross Square Feet |
|---|---|---|---|---|---|
| 1964 | Mohn Hall | | | | 67,270 |
| 1964 | Larson Hall | | | | 74,760 |
| 1967 | Skoglund Athletic Center | | | | 134,000 |
| 1968 | Tomson Hall (Science Center) | 2015 | | | 123,150 |

### Consolidating Growth (1975-1995)

| | | | | | |
|---|---|---|---|---|---|
| 1975 | Physical Plant Warehouses | | | | 16,000 |
| 1976 | Christiansen Hall of Music | | | | 67,850 |
| 1980 | Rand Hall | | | | 65,000 |
| 1982 | President's House | | | | 4,228 |
| 1989 | Manitou Hall | | | | |
| 1992 | Porter Hall | | | | 15,000 |

### Framework Plan Implementation (1996 - Present)

| | | | | | |
|---|---|---|---|---|---|
| 1999 | Buntrock Commons | | | | 175,000 |
| 2002 | Tostrud Athletic Center | | | | 97,000 |
| 2008 | Regents Hall for Mathematical Sciences | 2009 | | | 13,888 |
| 2008 | Regents Hall for Natural Sciences | | | | 190,420 |
| 2014 | Flaten Art Barn (new) | | | | 2,600 |

Table 2. St. Olaf Houses with square footages

## St. Olaf Houses

| *Building Name* | *Gross Square Feet* |
|---|---|
| Aaker House | 1,850 |
| Felland House | 2,250 |
| Flaten House | 1,800 |
| Forest Inn | 2,250 |
| Haldorsen House | 1,725 |
| Holstad House | 2,075 |
| Huggenvik House | 2,300 |
| Lincoln Inn | 2,450 |
| Lincoln Manor | 2,575 |
| Mohn House | 1,829 |
| Rose House | 2,090 |
| Schmidt House | 2,550 |
| St. John's House | 2,550 |
| Swanson House | 2,540 |
| Thompson House | 1,900 |
| Ytterboe House | 1,663 |
| Holland House | 1,140 |
| Larson House | 2,565 |
| Finholt House | 2,700 |
| President's House | 4,228 |
| Sovik House | 1,568 |


**DIAGRAM A.1**
BUILDING
CHRONOLOGY

- 1878-1902: The Earliest Campus
- 1920-1942: Boe Legacy
- 1947-1963: After WWII
- 1964-1974: Centennial Decade
- 1975-1995: Consolidating Growth
- 1996-Present: Framework Plan Implementation

St. Olaf Property

0' 150' 300'

Scale: 1" = 300'

# A.2 FACILITIES CONDITION

The St. Olaf Facilities Department has created and maintains a Comprehensive Replacement Deferred Maintenance (CRDM) model. Deferred Maintenance tracks needed improvements based on building age, physical condition, and functional operation - including such factors as structural, architectural, mechanical, and electrical deficiencies - which are then compared to the St. Olaf Comprehensive Replacement Cost Table. The Facilities Condition diagram reflects the CRDM and the College's aggressive renovation and new construction program over the past two decades. St. Olaf's dedication to ongoing facility renewal has resulted in a large number of buildings in excellent condition (green). The small number of buildings classified as Renewal Past Due (red) are currently undergoing or are planned for renovation. Looking forward twenty years, it is important to consider buildings that will be up for renewal before 2036. These buildings are shaded in orange, and are excellent candidates for future renovation to address programmatic recommendations and strategies identified through the Framework Planning process. Specific deficiencies of buildings which might otherwise be in a higher classification are also noted.

### No Major Change Recommended

A large number of buildings are in excellent condition and generally not in need of any work other than routine maintenance. These include Old Main, Regents, Tomson, Buntrock, Boe Chapel, Dittman, Hall of Music, and Tostrud. Any necessary improvements to better accommodate sustainability goals, universal design and changing program requirements would be minor.

The recently updated residence halls, in particular, provide opportunities for continuing improvements. Examples include:

- Ellingson - improve visibility and welcoming at entrance; cover restroom addition with stone
- Hoyme - upgrade restrooms; improve accessibility at main entrance
- Kildahl – improve daylighting, welcoming and acoustic separation for study areas

### Renewal Recommended in 20-Year Horizon

*Holland Hall* is currently undergoing renovation to provide high-quality teaching and learning spaces for six academic departments in the Social Sciences and Humanities. The building is receiving new windows; insulation; mechanical, electrical, and plumbing (MEP) systems; and enhanced openness and access to light and views. Renovation will be complete in May 2017.

*Rolvaag Memorial Library* recently completed a renovation to house DISCO and the IT department, part of an ongoing transformation from a building holding books to a learning center accommodating multiple study and research styles, advanced technology, and a variety of other resources to serve the current and future needs of students, faculty and staff. The former IT offices are currently being used as temporary offices for Holland Hall faculty and the space will be available for renovation to accommodate a new program in mid-2017.

*Porter Hall* is in need of upgrades to meet its multi-purpose programming for sports and special events. In particular, the athletics department is in need of more space in this location.

The President's Residence also falls in this category. It will be key to determine the programmatic needs for entertainment and support of the President's office vs needs to support a residence comparable to peer institutions.

Six residence halls will be candidates for Renewal in the course of this Plan, with the majority planned for the next six years. Necessary improvements will accommodate universal design and changing program requirements. Examples include:

- Mohn – renovate showers; improve elevators; increase lounge spaces on some floors; update mechanical/electrical/plumbing systems; improve building envelope (insulation and windows); replace finishes
- Larson – renovate showers; increase lounge spaces on some floors; update mechanical/electrical/plumbing systems; improve building envelope (insulation and windows); replace finishes
- Rand - resolve moisture issues; improve lighting throughout; update mechanical/electrical/plumbing systems; improve building envelope (insulation and windows); consider air conditioning to take pressure off Ytterboe for summer events; replace finishes
- Hilleboe - update mechanical/electrical/plumbing systems; improve building envelope (insulation and windows); replace finishes
- Thorson - update mechanical/electrical/plumbing systems; upgrade kitchen; address egress issues at Mosque on lower level
- Ytterboe - resolve moisture issues at west end; include dehumidification and fresh air building-wide; improve building envelope; update mechanical/electrical/plumbing systems; upgrade kitchens; replace finishes

### Renewal Past Due

*Christiansen Hall of Music* has had minimal renovation since its construction. Upgrades to mechanical/electrical/plumbing systems and the building envelope will be necessary. Other critical concerns include ways to address overcrowding and the best use of Urness Hall.

*Skifter Hall* has had extensive re-organization inside in order to meet the office and studio needs for the Organ program. The enclosure needs improved windows and perimeter insulation. HVAC systems for the building should be upgraded as the opportunity presents itself.

*Skoglund Athletic Center* has received major improvements to the Arena but the lobby, locker rooms, support spaces, field house and pool must be renovated to meet NCAA competition requirements, compete with peers, improve wayfinding, provide a sense of welcome, and strengthen the St. Olaf brand. Updates to building systems and envelope are also needed in addition to adding press boxes and other support spaces, improve facilities support, and assure accessibility to the stage. Repurposing the current field house as an ice arena is a topic of current exploration, as is the desire to increase space available to athletics, recreation, and exercise science.

*Steensland Hall* is currently undergoing renovation to return it to its historic character. The Framework Plan will assist in determining an appropriate program for the new space to meet College needs.

Despite recent investments, the *Theater Building / Kelsey Theater* requires significant upgrades to improve accessibility, update building systems, improve the building envelope, and fit programmatic needs to the available space.

A strategic decision to renovate first year residence halls has resulted in substantial renovation projects that have kept all but two residence halls out of the Past Due category:

- Kittelsby is planned for complete renovation to convert to hot water heat and fresh air, update restrooms, and upgrade envelope.
- Mellby has received several recent upgrades including mechanical, but is due for windows, tuck-pointing, heating, and accessibility improvements.

*Honor Houses and adjacent residences*, along Highway 19 and St. Olaf Avenue, are in various states of repair. Most of these residences are turn-of-the-century and require maintenance which is not cost effective. Furthermore, code issues limit the scope of renovations that are possible while preserving current occupant counts.

The infrastructure of the *Madson Facilities Building* is in great condition. The electric service and internal electrical system are new in 2015. Boilers are in good condition and with the addition of the most recent 30,000 PPH package unit there is 100% steam redundancy for the campus. All boilers are dual-fuel and set up for natural gas as well as #2 heating oil. There is adequate modern oil storage to cover several days in case of natural gas interruption. Offices and trade shops are very basic and could be improved with more space and infrastructure. Windows are original and there is no perimeter insulation, but saving heat is not important in this case. Adjacent to Madson, the standby electricity building houses three diesel stand-by generators that total 4.2 mW, and can operate the entire campus when needed. The building, electrical gear, and generator sets are all in excellent condition

The Highway 19 *Warehouses and Grounds* shops are in good condition for their use, but the Grounds mechanical shop is too small and would benefit from a washing bay, vehicle lift, and equipment storage. The location, south of Highway 19, makes travel back and forth to the campus more difficult than it should be, and there is a plan to move these to the campus as funding is available.


**DIAGRAM A.2**
FACILITIES CONDITION

- No Change Recommended
- Renewal Recommended in 20-Year Horizon
- Renewal Past Due
- Unrated

St. Olaf Property

0' 150' 300'

Scale: 1" = 300'

# **A.3** PRIMARY FACILITY USE

The core campus land use has been shaped for decades by its primary facility use. The historic separation of residential building from academic facility uses continues to create distinct zones for living and learning. The Primary Facility Use Diagram indicates how this pattern has persisted over the past twenty years as well as highlights the mixed use nature of most of St. Olaf's core campus facilities.

## Academic

The St. Olaf academic mission is primarily housed on top of Manitou Heights. Academic facilities are located within the Loop Road and stretch northwest from Old Main to Tostrud Center. Many academic facilities support additional uses – including library, study, administrative and athletics / recreation functions. The campus academic zone is focused around a series of multi-purpose quads. Rolvaag Memorial Library, Theater Building, and Tomson Hall frame the main central quad. Adjacent to the central quad, but framing smaller quads, are Old Main, Holland Hall, and Regents Hall to the east and Dittmann Center, Hall of Music, Christiansen Hall of Music, and Skifter Hall to the west.

The academic zone is clearly visible from the center of the central quad, but if Skoglund Athletic Center, the Flaten Art Barn, Ytterboe Hall, and Tom Porter Hall are considered, the zone stretches far beyond the main quad. Walking distances from Old Main to Skoglund - or even Dittmann and Christiansen - are at the limits of what students can traverse between class change times. Winter weather and rainy days can make these distances feel especially challenging.

## Library / Study

Rolvaag Library, and its numerous additions, has been the seat of the St. Olaf print collections for nearly 100 years. It anchors the northeast corner of the central quad, is intimately linked with student life functions in Buntrock Commons, and is the campus heart and crossroads for research, IT support, individual and group study and archival learning. Support libraries for science and music needs are located in Christiansen and Regents Halls. Because both of these facilities are "off the beaten path" for students who are not majoring in these disciplines, they are primarily special-purpose resource destinations as well as social hubs for majors.

## Administration

Administrative functions are housed primarily in Tomson and Alumni Halls, with secondary spaces in Boe Chapel and Madson Facilities Building. Administrative departments have been centralized in these renovated facilities over the past twenty years and their division meets their functional and outreach requirements. However, since these buildings are on opposite ends of the campus, walking distances combined with parking policy (and cold weather), may encourage driving between the facilities during the winter months.

## Student Life

As a 24/7 learning community, student life facilities are essential to provide for co-curricular and other student programming, dining, amenities and services, conference and meeting space, visitor accommodations and community outreach. Primarily located inside the Loop Road, three buildings house most of the student life functions: Boe Chapel, Buntrock Commons, and the Tostrud/ Skoglund complex. These student activity buildings have all been newly constructed or renovated in the last two decades. In their wake, the dynamics of campus student activity patterns have changed dramatically. Located on the north side of the central quad and off the hill - adjacent to large surface parking lots – they are central to most academic buildings but separated by vehicles and topography from the residence halls. Special performance facilities are also central to student life, particularly with St. Olaf's focus on the arts, and include Kelsey Theatre, Recital Hall, Boe Chapel, Lion's Pause, Viking Theatre and Skoglund Athletic Center.

A student life node is missing in the Old Main Quad area. The Norway Valley Cafe in Regents Hall has been closed and Steensland Hall remains unoccupied. Both spaces provide opportunities to strategize appropriate services and amenities for this heavily utilized academic zone.

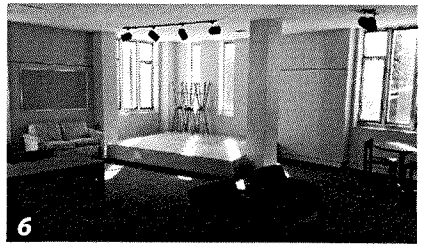


## Residential

St. Olaf's mission includes a commitment to students living on campus. Eleven residence halls and a collection of nineteen former single family houses along St. Olaf Avenue, Highway 19, and Lincoln Street house almost all of the student body. The residence halls flank the academic core on the northeast and southwest, in a crescent located on peninsulas extending from the central quad. Historically developed to separate male and female dormitories, they are generally located outside of the Loop Road (with the exception of Mellby Hall and Larson Hall), away from academic facilities, and capitalize on views over the surrounding countryside. There are a few exceptions to this pattern. Four of the halls are hosts for the academic Conversations programs. Ytterboe Hall's lower level has special purpose academic and meeting space, but its entry is isolated from the general flow of students.

The College-owned houses are primarily dedicated to serving students who are looking for an alternative to residence hall lifestyles and an opportunity to live in a small-scale academic community. Their current focus includes foreign languages, diversity and other proposed programs. The demand by third- and fourth-year students for these residential settings continues to increase. However, because these homes have not been built for their purpose and have been acquired opportunistically, they do not provide an easy-to-maintain or consistently high quality setting that can be readily expanded along the campus perimeter.

6. Interior of Larson Hall lounge
7. Interior of Regents Hall lounge

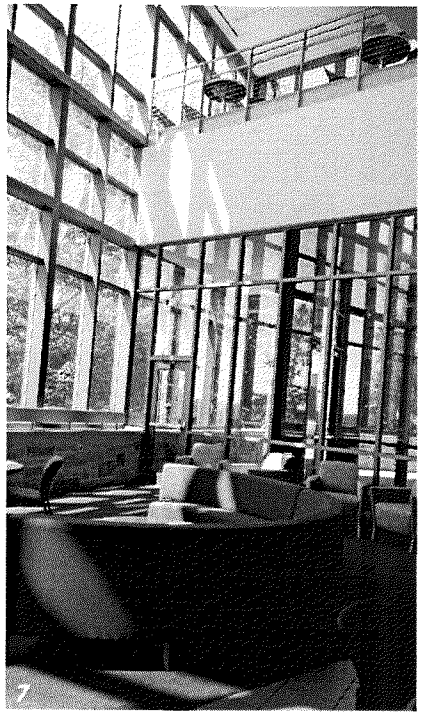



## Athletics / Recreation

The two Athletic/Recreation buildings, Skoglund Athletic Center and Porter Hall are in both the east and west portions of the campus, but below Manitou Heights.

## Facilities Support

Buildings that house staff, services, equipment and storage for maintenance and operations are located east and south of the campus core - below Manitou Heights. Service functions are housed in the Power Plant, Pump House, and grounds maintenance and warehouse facilities are separated from the campus by Highway 19.




## DIAGRAM A.3
PRIMARY
FACILITY USE

- Academic
- Library / Study
- Administration
- Student Life
- Residential
- Athletic / Recreation
- Facilities Support
- Unoccupied

1. Residence Hall for the Great Conversation
2. Residence Hall for the American Conversation
3. Residence Hall for the Environmental Conversation

**Academic Houses**

4. Chinese
5. French
6. German
7. Norwegian
8. Russian
9. Spanish
10. Diversity Awareness

St. Olaf Property

0' 150' 300'

Scale: 1" = 300'

# A.4 ACADEMIC COMMUNITIES

St. Olaf's mission, vision, and values reinforce a liberal arts education. The campus has developed fairly distinct academic zones over the past two decades and faculty resources have been concentrated to support and strengthen cohesive departmental identities. Although many academic buildings continue to house more than one discipline, new building construction, repurposing and renovations have all been utilized to provide a "home base" to strengthen collegiality and identity within each of the five academic Faculties and their departments and programs. This pattern continues today with Holland Hall's planned renovation for Social Sciences. The Academic Communities diagram illustrates the strengths and challenges of this pattern. One unintended consequence has been the absence of a strong home base and visibility for the Interdisciplinary and General Studies faculty and for the broader interdisciplinary interactions and programs that differentiate a liberal arts curriculum.

### Fine Arts

Originally located in eight different buildings, the Fine Arts are now co-located in one "village" that anchors the northwest corner of the academic core. Dittmann Center, Hall of Music, Christiansen Hall of Music, Skifter Hall and Speech-Theater Building create their own academic quad that is fairly quiet during the academic day and very active with co-curricular programs, practice, studio work, performance and special events in the evening.

### Humanities

Rolvaag Memorial Library, Holland Hall, Tomson Hall, and Old Main host the Humanities departments and programs. They anchor the southeast corner of the academic core and there is a constant flow of students during the academic day from the central quad to the Old Main quad as these majors – and others – attend class. When Steensland Hall is renovated and occupied it will fill a crucial gap in this sequence.

### Social Sciences

The departments and programs for Social Sciences are the most widely dispersed of any Faculty. Ranging from Holland and Tomson Halls in the core campus, to Skoglund and Porter Hall off the hill, students and faculty currently lack an exemplary home base and have the furthest distances to cover to meet with colleagues. The temporary relocation of the Nursing Department to Ytterboe Hall continues this pattern. The planned renovation of Holland Hall provides a long awaited platform for showcasing the Social Sciences.

### Natural Sciences and Mathematics

Regents Hall is a LEED Platinum, nationally acclaimed, undergraduate science-teaching facility and the consolidated home of all natural science and mathematics departments. The building also serves as a critical link campus connector – linking students from Tomson Hall to Old Main during rainfall and bitter winter weather. This experience is an invaluable opportunity to provide an interdisciplinary pathway that cross-pollinates students in three of the five faculties. As a campus crossroads, equal to the scale of Buntrock Commons' impact on student life, Regents Hall is the natural location to explore increasing opportunities for interdisciplinary activities, amenities and spaces.

### Interdisciplinary and General Studies

The St. Olaf curriculum provides opportunities for integrative study and the pursuit of majors and concentrations via interdisciplinary departments and programs. These interdisciplinary endeavors offer rich and diverse opportunities, bridging the historic to the contemporary, aimed at uncovering the connections among ideas, cultures, places, and events. Each area of study incorporates and integrates perspectives from the four previously mentioned Faculties and generates novel lines of inquiry, experiences, knowledge, and creative expression. Their dispersal across nearly every academic facility creates challenges toward establishing a home base and to building connections among students, faculty, and staff. This framework plan provides an opportunity to create a home base or showcase for this component of the St. Olaf mission, and to ask about its relationship to other centers and resources for the academic program.

### Academic Resources

Classrooms, labs, and studio space are generally located in the same building as the remainder of related departmental office spaces. General use classrooms – scheduled by the registrar and shared between departments - are available in all major academic buildings. To support interaction between departments – and to make the most efficient use of college resources - the use of large lecture halls, general classrooms, seminar rooms, and conference rooms are not restricted to the academic discipline that has its departmental home in the building.

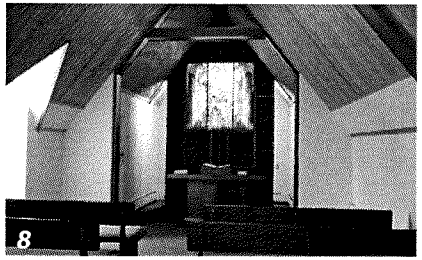
Academic resources are also found in non-academic buildings. Rolvaag Library, besides it being the home base for the English department, is the major campus resource and destination for digital, archival and collections research, study, and IT support. Buntrock Commons and Boe Chapel are significant study destinations for students, who make use of IT connectivity and work areas to support collaboration and team projects. All residence halls are supported by Academic Computing labs and have additional space for individual study, group study, music practice and Steinway pianos.

### Classroom/Lab Utilization

Classroom, laboratory and studio utilization has been examined for every scheduled academic building space on campus – based on data from the Registrar's Office. Student contact hours have been reviewed to identify hourly, daily, and weekly utilization as well as the volume of student flow per class period and divergent student destinations.

Regents Hall has the highest student use, with over 2,000 students/period/week. Other high-use classroom buildings include Tomson Hall, Holland Hall, and Old Main, creating a core zone of student academic activity at the southeast comer of the campus. Every student spends classroom time in Regents Hall and Old Main because of curriculum requirements. Walking distances between classes in remote buildings, such as Old Main and Skoglund, may encourage driving by students and faculty. Walking distances also indicate that between classes, students may choose not to return to their residence halls until after classes. Proximity to highly utilized facilities as well as outlying programs is an important consideration for any new facilities that support the daytime student experience. Exterior and interior gathering spaces need to be readily available.

8. Hillebroe Chapel, Hillebroe and Kittelsby Halls
9. Lower level of Ytterboe Hall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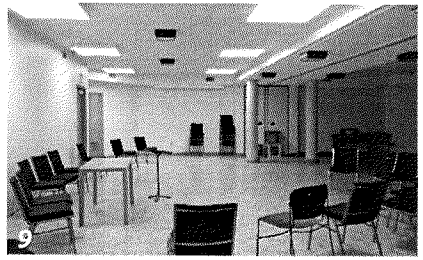
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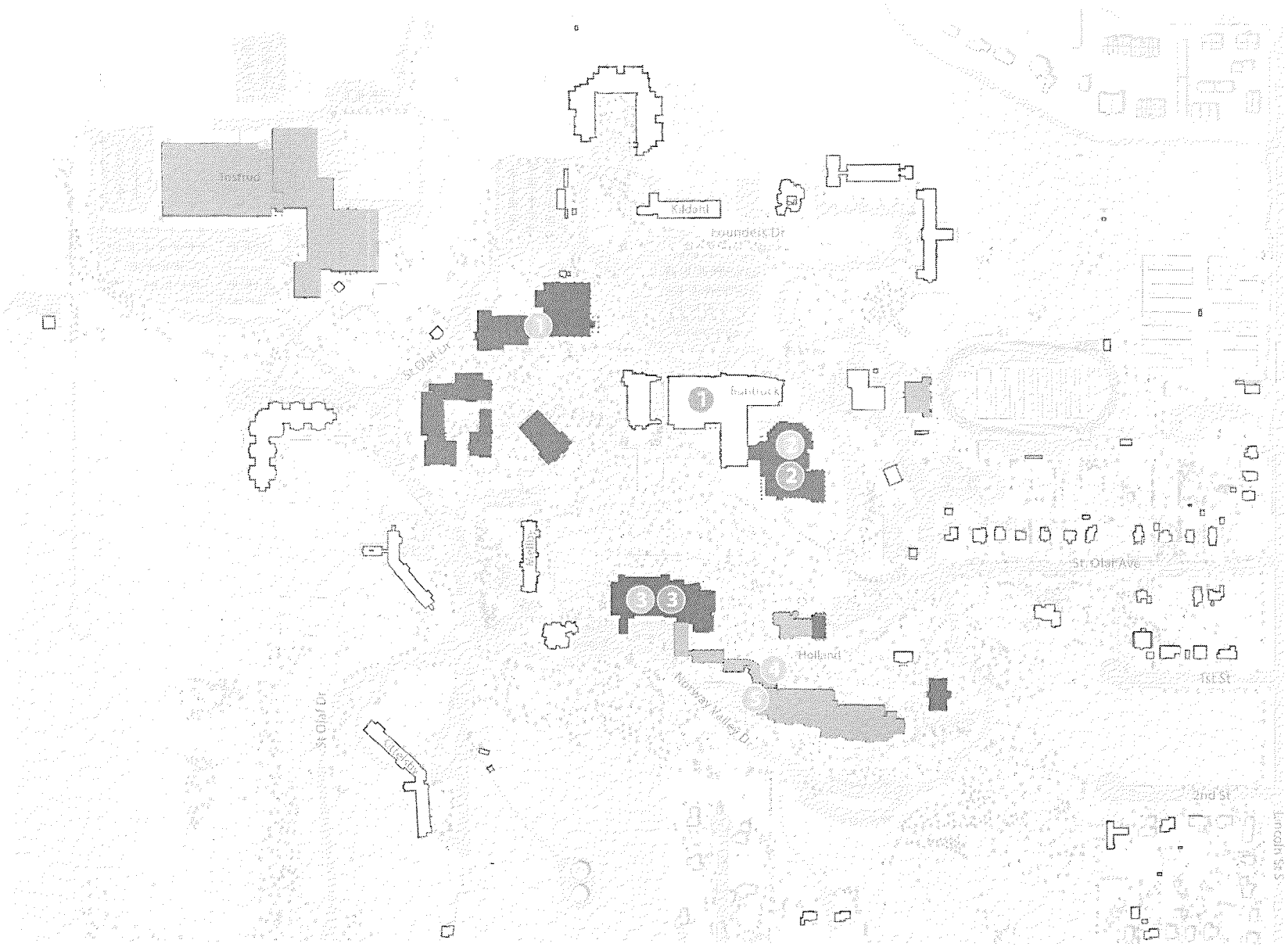


**DIAGRAM A.4**
ACADEMIC COMMUNITIES

- Fine Arts
- Humanities
- Social Sciences
- Natural Sciences + Math

**Interdisciplinary Spaces**

- The Link
- DISCO+Digital Humanities
- Asian Studies
- Center for Integrative Studies
- GIS Laboratory

**Academic Resources**

1. Academic Advising
   Academic Support Center
2. Writing Center
   Information Technology (IT) Helpdesk
3. Center for Innovation in the Liberal Arts International and Off-Campus Studies
   Piper Center for Vocation and Career
   World Languages Center
   Student Support Services / TRIO
   Academic Civic Engagement

St. Olaf Property

Scale: 1" = 300'

# A.5 INFORMAL STUDY SPACE

St. Olaf has made great strides to increase the amount of Informal Study Space on campus. Over the past decade, several key projects have increased the quantity and quality of space available:

- Regents Hall
- Tomson Hall
- Boe Undercroft
- Expanded hours of operation in Buntrock
- Dittmann Link
- Additional lounges in Ellingson and Kildahl
- Library renovations

Advances in campus WiFi access, tablet and laptop capabilities - combined with an increase in Adirondack and picnic table seating - have also expanded opportunities for studying outdoors.

## Informal Gathering

Informal gathering space is defined as a location where most of the available seating is comfortable, plush furniture in a public or semi-public setting where noise levels may be medium to high.

The majority of newly-created gathering space is of this type, though some spaces have unofficially taken on the identity of quiet study zones. Students expressed frustration in not being free to talk in these areas, and conversely expressed a desire that more spaces be quiet.

## Study Lounge

Study lounge space is defined as a location with primarily tables and chairs with a quiet atmosphere dedicated to study.

Despite the growth of informal gathering spaces where students may study, the presence of dedicated Study Lounges has not significantly increased. Students expressed the desire to have more dedicated study space, particularly small rooms for group work where students could collaborate without disturbing others.

## More Study Space Needed

The Holland Hall renovation will increase the study space available there – providing a vibrant mix of informal gathering and dedicated study space. The renovation of Steensland has similar potential. Steering Committee members identified additional areas where there is currently a lack of study space:

- Ytterboe, Mohn, Rand, and Larson are most in need of an increase in dedicated study space. As lounges have been converted to student rooms to increase capacity, residence halls have sacrificed study space outside of dorm rooms. The need for higher-capacity computer labs was also mentioned in many locations.
- Tostrud/Skoglund and Christiansen lack study spaces that are comparable to other academic buildings. New study space would provide an amenity to students in athletics and music as well as increase a sense of community for both facilities.
- More centrally located quiet and group study rooms are desired in Rolvaag - including a return of the Romper Room.
- More semi-outdoor study space in key locations is highly desirable – including small, glassy "porches" with tables and access to power. In more remote areas of the campus, power could be provided by solar panels on the roof to enable construction.


10


11


12


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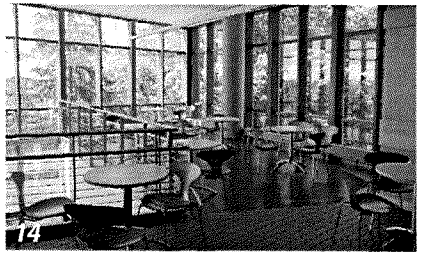
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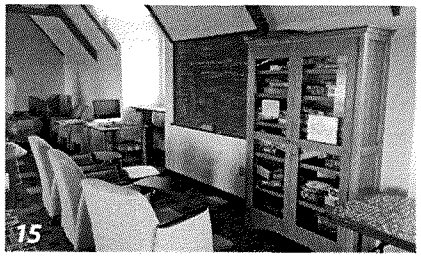
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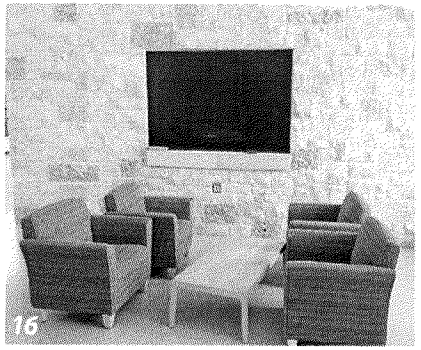
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10. Lounge in Old Main Hall
11. Lounge in Boe Memorial Chapel
12. Lounge in Old Main Hall
13. Lounge in Ellingson Hall
14. Seating area in Regents Hall
15. Study area in Old Music Hall
16. Study area in Regents Hall.

## Student Research on Informal Learning Spaces

As a supplement to observations and campus engagement, students in Professor Ryan Shepard's SoAn371 course dedicated their semester to surveying students and faculty on the topic of formal and informal learning spaces on campus. Their key findings relevant to Informal Study Space, in their own words, include:

*Study Features*

- The aesthetic features that pull students most strongly towards study spaces are large tables, multiple seating options, and chairs that are easy to move. This reflects students' desire for comfort and the ability to do multiple kinds of work in the same study space.
- A large majority of students like to study at tables located next to a wall.
- Windows are the architectural feature that most draw students to a study space followed closely by writable walls.
- A large minority (one-third) reported liking to study in window seats. Non-seniors are more apt to like studying in window seats than their senior counterparts.
- High-top tables and white walls pushed students away from study spaces.
- When looking for a study space to engage in group work, moveable furniture and natural background noise have a large influence.
- Reliable WiFi is both the most preferred and the most frequently used technological feature. Without consistent WiFi in academic buildings and residence halls, students' ability to complete their academic work is hindered.
- Many St. Olaf students expressed the need to have more outlets and to have them in more accessible places (not just along the periphery of a study space).

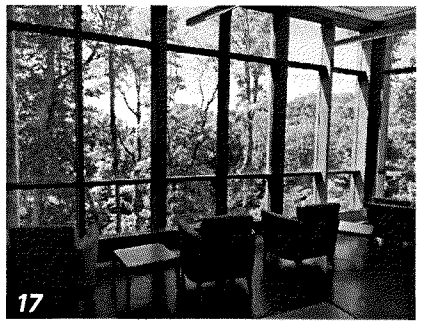
*Location and Policy*

- Students reported Rolvaag quiet floors (1, 2 and 5) as the location on campus for most effective studying.
- Students' dorm rooms are the most popular space for studying, with 60.3% of students reporting studying there for 4 or more hours per week.
- Humanities majors are more likely than non-humanities majors to study in a dorm room
- Over three-quarters of students prefer studying in quiet spaces.
- Over two-thirds prefer spaces where they can study near friends.
- Students who agree with the statement "[I] like to study where it is okay for people to talk out loud" are more likely to study in the New Cage.
- Rolvaag Library is the most popular library space (and second most popular overall study space, after dorm rooms). The quiet and non-quiet floors have similar rates of use: 50% use the quiet floors for at least an hour a week; 49.4% use the non-quiet floors for at least an hour a week.
- Seniors are more likely than non-seniors to study in the New Cage for 1-3 hours per week.
- Social science majors are more likely than non-social science majors to study on Rolvaag library non-quiet floors (3,3.5, and 4 floors)
- Natural Sciences and Math (NSM) majors are six times more likely than non-NSM majors to spend at least 4 hours per week in Hustad Science Library.
- Over three-quarters of students (76.9%) would like a 24-hour study space other than their dorm rooms or study lounges.
- The building hours students are most satisfied with are Buntrock Commons (74.7%), The Cage (71.1%), and Rolvaag Memorial Library (61.4%). Students are most dissatisfied with the hours of Rolvaag Memorial Library (23.4%), Tomson Hall (17.7%), and Skoglund/Tostrud (14.1%), particularly with the weekend hours of Rolvaag Memorial Library and Regents Hall.

*Key Recommendations*

- Include windows wherever possible. Given our results, we predict this would attract more students to a study space and would heighten student satisfaction with those locations on campus.
- When possible, place tables or desks next to walls. Seating next to walls would provide this semblance of seclusion while studying in the same place as others.
- Maintain a variety of styles of study spaces on campus. Individual students have different study requirements and preferences. For example, some love the modernity of Regents Hall of Natural Science while others love the classical style of the Reference Room in Rolvaag Library. A diversity of study space styles on campus allows the college to meet the various needs of its students.
- Consider all aspects of space that holistically shape students' perceptions of comfort, including temperature, lighting, noise, ease of access to technological devices, various options for seating, and ease of manipulating the arrangement of furniture in study spaces.
- Provide various types of upholstered furniture which offer students different options for seating in whichever position is most comfortable to them and therefore makes the environment more conducive to their personal study habits.
- Consider the possibility of having furniture that easy to move, as this offers the most flexibility for a variety of learning techniques. Schoolwork varies and a space that provides comfortable variety is essential.
- Recognize the role technology plays in comfort. The heavy reliance on WiFi suggests that it will be necessary to invest in making it more reliable and efficient. The heavy use of technology also leads to the need for more outlets so that students are able to remain at their chosen place to study.
- Be sure that some study spaces are designated as quiet while others allow for quiet conversations between friends and/or group project members.
- Increase the number of individual and group study rooms in Rolvaag Memorial Library.
- Reassess building hours, especially weekend hours for Rolvaag Memorial Library and Regents Hall.
- Consider creating a 24-hour student study space (outside of student housing).

17. Student lounge in Regents Hall, overlooking Norway Valley. 18. Informal seating in the stacks of Rolvaag Library



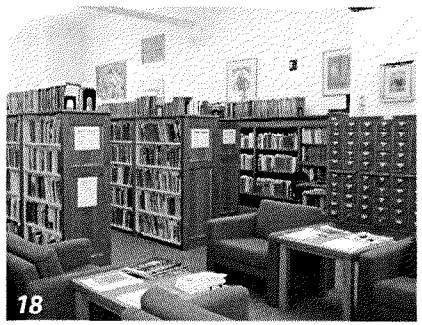




**DIAGRAM A.5**
INFORMAL STUDY SPACE

Informal Gathering

Study Lounge

Additional Study Space Requested

St. Olaf Property

0' 150' 300'

Scale: 1" = 300'

# **A.6** RESIDENTIAL COMMUNITIES

St. Olaf is a residential campus. Its mission includes a commitment to students living on campus. Eleven residence halls and a collection of nineteen single family houses along St. Olaf Avenue, Highway 19, and Lincoln Street can accommodate 2,879 students. Of the 3,333 students enrolled in 2015, 86% lived on campus.

Ytterboe Hall has the highest occupancy of all residence halls on campus, and is also the largest. The high-rise dormitories, Larson Hall and Mohn Hall, have the second highest occupancy. Generally, residential density on campus is nearly balanced with a slightly greater number of students to the south. This even balance will not be affected significantly if new residence halls are constructed to replace aging single-family homes.

The Steering Committee and Work Groups have identified a desire for increased housing on-campus - as well as an increased variety in types of housing available. Suite-style, apartments, and options for non-traditional students and faculty/staff hold particular interest. The future of the Honor Houses, including planned renovations or replacements, will be an important consideration of the Framework Plan recommendations.

## Class Year Distribution

The First-Year experience is carefully crafted at St. Olaf, fostered in residence halls dedicated to First-Year students, and supported by Junior Counselors. Kittelsby, Hoyme, Ellingson and Kildahl Halls are dedicated to incoming students. Mohn Hall serves as in somewhat of an overflow capacity, housing the remainder of First-Year students in a primarily Sophomore community.

The remainder of residence hall rooms are selected by returning students during a room draw process. Students typically base their selection(s) on personal style and preference(s) - including the type of unit, the ability to live with friends, and synergy with academic and co-curricular activities. The 2014-2015 distribution of Class Years is shown by shading of majority class in the diagram, and by percentage in the table. While preference can vary from year to year, Ytterboe is typically highly preferred by Seniors for its pods of 10 students.

## Student Amenities

Most student amenities are clustered in or near Buntrock Commons - separate from academic spaces. The Commons is the clear center of student life but the facility has suffered from its own success. Buntrock is so full of student services that, outside of the Pause and a small amount of space for student organizations, there is little area for student-operated and informal gathering spaces.

The Recreation/Wellness Center is located in Tostrud/Skoglund. While there is agreement that the fitness equipment is an excellent amenity, it is heavily used by athletic teams in addition to students and can easily become overcrowded.

The Health Service in Tomson Hall provides basic clinic facilities for students.

The College Ministry, three chapels, and a mosque cater to student's spiritual lives. Students expressed a desire for a space on campus accommodating spiritual needs not tied to a particular religion.

The Counseling Center is located below the eastern side of the core campus along St. Olaf Avenue. While some expressed the benefits of the solitude and privacy of this location for students seeking services, the majority of students indicated that a location closer to the academic core would be more visible and convenient, encouraging increased use and drop-in visits.

## Academic Communities

Residence halls play a strong role in the academic life of St. Olaf. In addition to providing lounges for study and fellowship and community-building programming through Resident Assistants, several halls and houses have a particular academic focus, as noted in Table 3.

Students in the Conversation programs spend their first year living together in the same residence hall. Students outside the programs live side-by-side with students participating in the Conversations.

Sophomores, Juniors and Seniors may apply to live in Honor Houses dedicated to students who are more intentionally studying a language, participating in a community service project, or serving in the diversity house. This is a popular option for students who want to live with friends and have more autonomy in their housing.

Table 3. Residence Hall resident structure and totals in Fall 2015

| | Ellingson Hall | Hilleboe Hall | Kittelsby Hall | Hoyme Hall | Kildahl Hall | Larson Hall | Mellby Hall | Mohn Hall | Rand Hall | Thorson Hall | Ytterboe Hall |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Residents | 203 | 126 | 254 | 241 | 181 | 320 | 198 | 320 | 250 | 243 | 410 |
| First Year | 92% | | 94% | 91% | 92% | | | 12% | | | |
| Sophomore | 6% | 86% | 4% | 5% | 5% | 28% | 21% | 82% | 24% | 66% | 2% |
| Junior | 2% | 14% | 2% | 3% | 3% | 57% | 59% | 5% | 34% | 27% | 15% |
| Senior | | | | 1% | | 15% | 20% | 1% | 42% | 7% | 83% |
| **Total Residents** | **186** | **123** | **238** | **220** | **168** | **313** | **193** | **307** | **244** | **237** | **402** |


## DIAGRAM A.6
## RESIDENTIAL COMMUNITIES

**Primary Class Year**

- First Year
- Sophomore
- Junior
- Senior

**Student Amenities**

1. Recreation/Wellness Center
2. Chapel
3. College Ministry
4. Student Orgs/SORC
5. Bookstore
6. Pause
7. Health Service
8. Mosque
9. Counseling Center

**Academic Communities**

- Residence Hall for the Great Conversation
- Residence Hall for the American Conversation
- Residence Hall for the Environmental Conversation
- Chinese
- French
- German
- Norwegian
- Russian
- Spanish
- Diversity Awareness

St. Olaf Property

0' 150' 300'

Scale: 1" = 300'

# 2

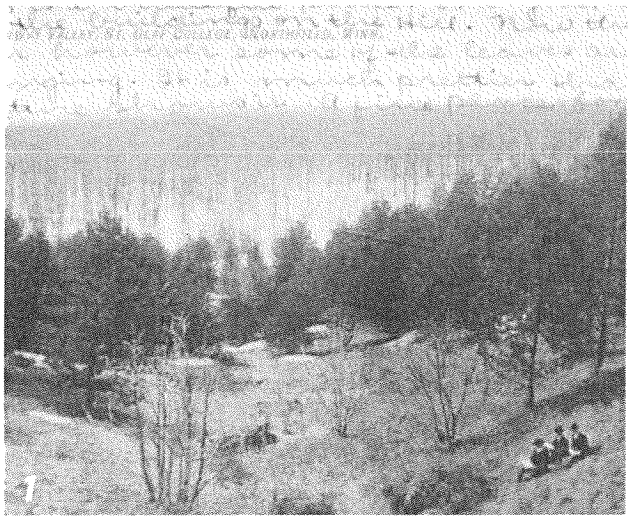
SECTION 2

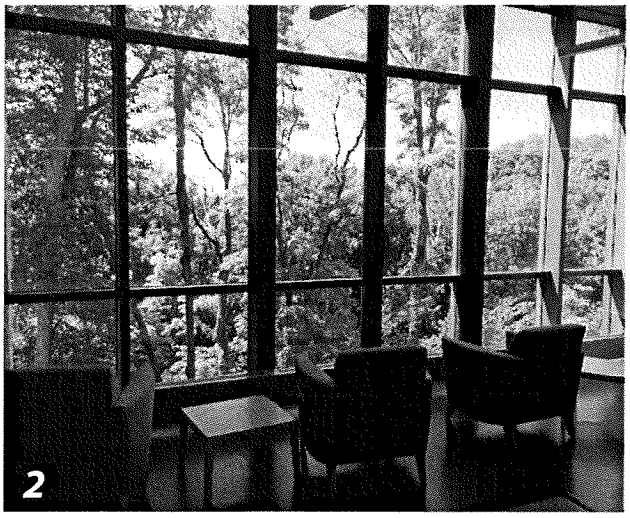
# EXISTING CONDITIONS ANALYSIS

## PART B. OPEN SPACE

B.1 Outlying Lands and Natural Vegetation
B.2 Agriculture
B.3 Open Space Character
B.4 Open Space Use
B.5 Athletics and Recreation

1. View of Norway Valley at St. Olaf College, 1908
2. Regents Hall open study space overlooking Norway Valley



# **B.1** OUTLYING LANDS & NATURAL VEGETATION

St. Olaf College owns approximately 325 acres of land comprised of forest, wetlands, and prairie. This unique environmental, academic, recreational and inspirational resource comprises the St. Olaf natural lands. There are currently three communities of natural lands/vegetation: the Existing and Restored Forest, Restored Prairie, and Wetlands.

The natural lands are a result of extensive restoration projects over the last 25+ years to create a variety of representative native Minnesota ecosystems. The lands enable students to learn about local ecosystems, promotes ecological diversity, serve as a green space buffer, and provide educational opportunities for students. An incredibly valuable resource for the College, over the course of their evolution, the natural lands have served as a place for scientific study and research, outdoor experiences, recreation, and casual observation and enjoyment.

The rural setting in which St. Olaf was founded and the natural lands greenbelt are critical assets for the College. Potential conflict exists from both external and internal pressures. The College has contemplated the expansion of athletic fields, additional parking, and development for resource generation, while the City of Northfield has desired annexation for residential and business park growth westward.

The College has identified the need for a welcoming and secure public access point to the natural lands trails. Access points to the Natural Land trails are currently oriented toward the interior of campus.

### Restored Prairie

This re-established ecosystem is part of a permanent U.S. Fish & Wildlife Service easement for wildlife habitat and is now over 20 years old. The restored prairie has two trail loops that are used for recreation, athletics, academic research, and general enjoyment of the landscape.

### Existing and Restored Forest

The natural lands include two significant forested areas, mature and restored forests, that contribute to the conservation of the regions' ecological history. The mature forests, composed primarily sugar maple, oak, ash and hickory exist on steep slopes such as Hoyme Woods and Norway Valley and survived primarily because steep slopes have deterred other development. The restored forests planted on what was previously farmland with species representative of the Big Woods, augment the mature forests.

### Wetlands

The wetlands in the natural lands are both naturally occurring and augmented by water control structures. The more than twelve wetlands, some seasonal, are a part of the Cannon River watershed and help with seasonal flood control, soil stability, and ground water recharge. The largest wetland, Big Pond (9 acres) is part of the 10 acre permanent U.S. Fish & Wildlife easements for wildlife habitat and provides habitat for migrating waterfowl. The location of Big Pond, just West of Tostrud Center, acts as a gateway to the prairie and forest habitats. This is a primary trail access point because of easy access to parking, and the convergence of several trails at this spot.

# **B.2** AGRICULTURE

In addition to the 325 acres of natural lands / vegetation described in the previous section, the College also owns approximately 375 acres of land that is leased to adjacent farmers for agricultural purposes. This agricultural usage provides an additional resource for students to use as an outdoor laboratory for study and observation.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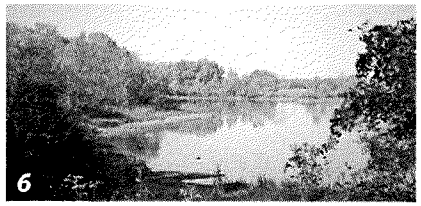
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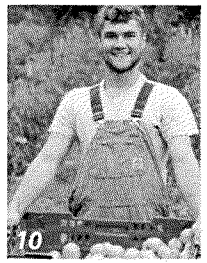
3. Informational sign at the natural lands access near Tostrud Athletic Center
4. Class observations at the natural lands
5. Women's Cross Country running race on the natural lands trail
6. Large wetland just west of Tostrud Athletic Center
7. Student Photography in the natural lands
8. View of Norway Valley south of Regents Hall
9. Deer siting
10. STOGROW farmer
11. Farming on St.Olaf agricultural lands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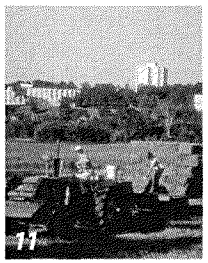
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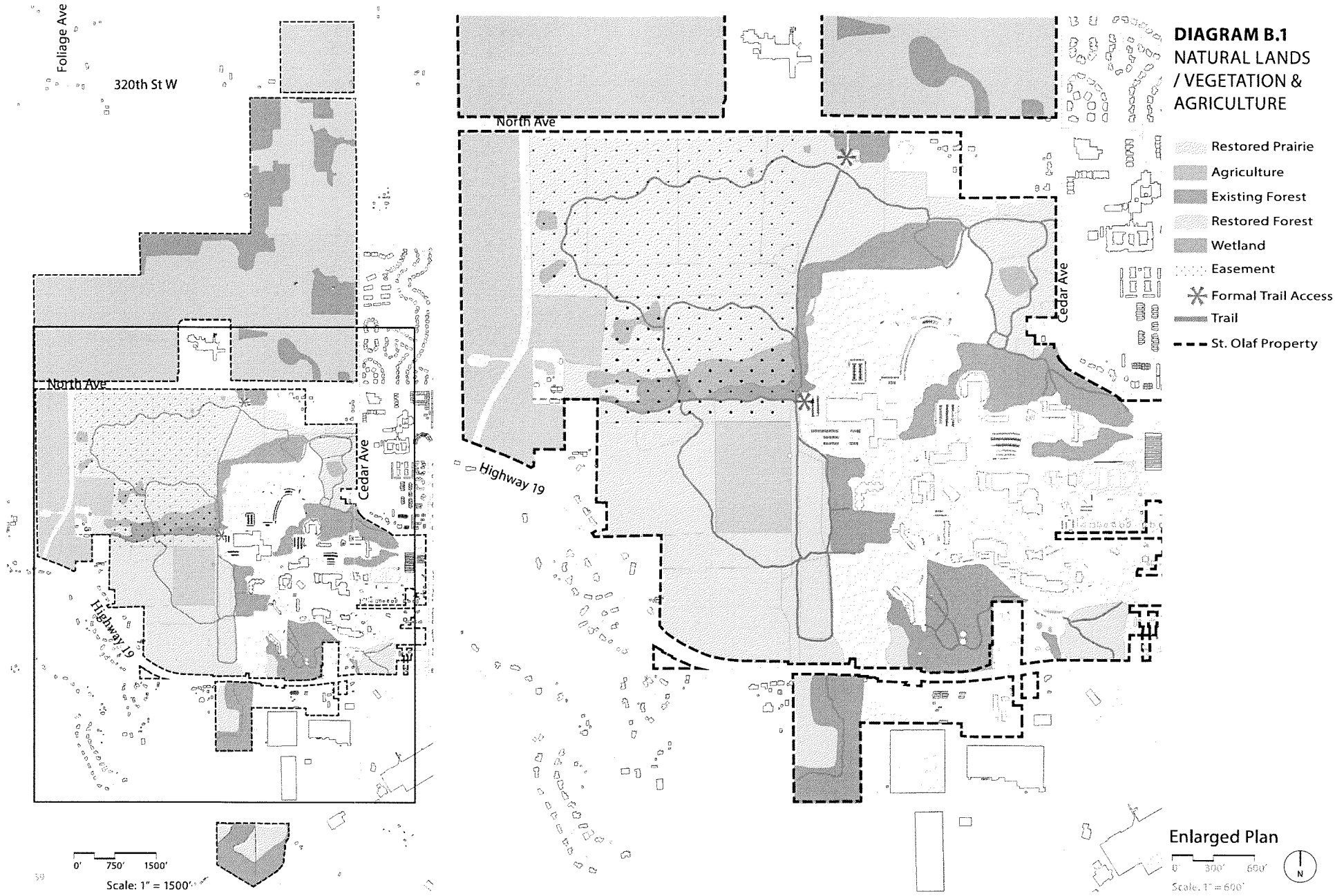



**DIAGRAM B.1**
NATURAL LANDS / VEGETATION & AGRICULTURE

- Restored Prairie
- Agriculture
- Existing Forest
- Restored Forest
- Wetland
- Easement
- Formal Trail Access
- Trail
- St. Olaf Property

# **B.3** OPEN SPACE CHARACTER

Campus open spaces are the non-built spaces on the campus property which are shaped by buildings, circulation, topography, and vegetation. The St. Olaf campus contains a variety of open space types that have been improved and expanded over the last 20 years.

### Natural Lands / Vegetation

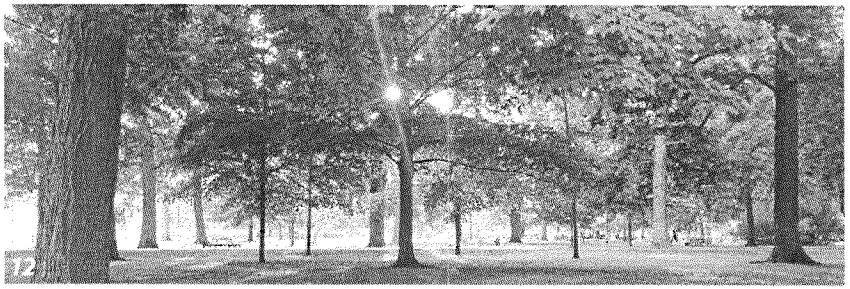
St. Olaf's natural lands include the surrounding prairies, agriculture, forests and the signature plateau and ravine topography. They are regarded as one of the most defining and beloved characteristics of the campus. Their native plant palette and informal character set the tone for the remaining college open space. The developed campus sits at the intersection of agricultural lands, native and restored natural lands, and the city of Northfield. Natural lands encircle the academic core on the north, south, and west sides of campus, and residential neighborhoods of Northfield are adjacent to the east.

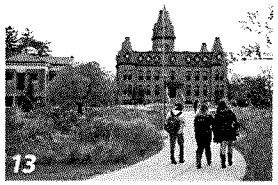
The topography of Manitou Heights also enforces an informal arrangement of campus buildings and circulation due to ridges and ravines. Campus facilities are concentrated to the top of the campus core but extend to the bottom of the core to the northwest and east sides of campus.

### Open Lawn

The open lawn typology highlights areas that have a ground plane of maintained grass. Throughout the academic core, sidewalks and open lawns create an open space framework composed of a series of informal, multifunctional "quads." The scattered trees and high canopy provide a sheltering and intimate ambiance. The consistent canopy overhead recalls the open climax forests of the region while providing a comfortable aesthetic of dappled and lively shade. These areas are typically framed by building facades and allow clear views through campus.

Other open lawn areas in the campus core are kept clear of trees and are used for recreation and athletics. This includes Mellby, Thorson, and Old Main lawns.





12. View of the central quad looking toward Kelsey Theater
13. Students walking toward Old Main and Steensland Hall
14. Bench and view behind Old Main



### Naturalized Plantings, Ornamental Plantings, and Destination Garden

Naturalized plantings are scattered throughout campus but they are not officially part of the St. Olaf natural lands. They are visually similar because they are either remnant vegetation or infill plantings that lack formal design.

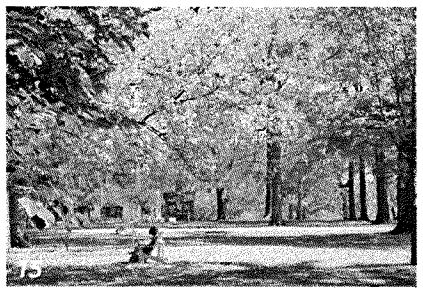
Ornamental plantings have been added over the last 20 years to add four-season visual interest and pollinator habitat.

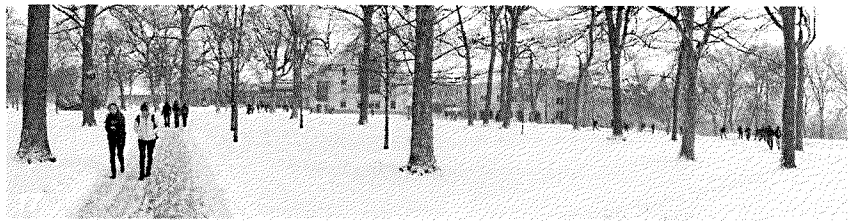
Destination gardens have emerged as a typology due to pathways and seating areas that have been included within naturalized and ornamentally planted areas. The distinguishing factors for a destination garden are access, seating, and some sense of enclosure.

### Wetlands and Stormwater Amenities

The wetlands in the natural lands are not only a great ecological amenity, they are a great character amenity. The presence of a water body typically creates a center of focus, as people are naturally drawn to water. New stormwater amenities on campus, such as those developed in conjunction with Regents Hall, connect the campus core to the nearby water ecosystems by daylighting a typically invisible system – water drainage. This has introduced a new and critical element to the open space character of campus. St. Olaf is working toward a goal of re-establishing the pre-settlement hydrological cycle to filter stormwater naturally as well as reduce and ultimately eliminate runoff.

15. Campus in the fall
16. Garden between Mellby Hall and Boe Chapel
17. View of the central quad, from Tomson Hall toward Buntrock Commons





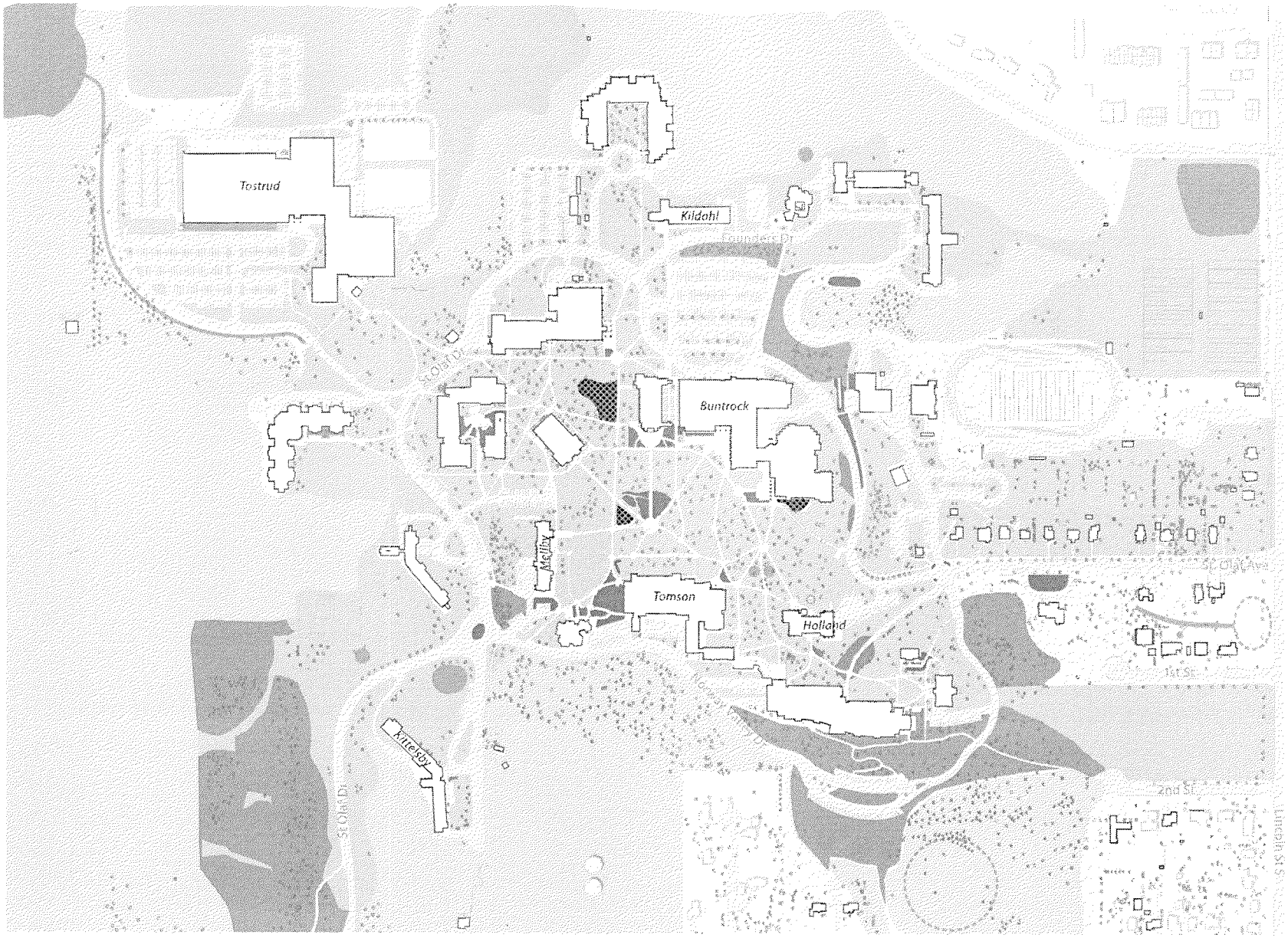



**DIAGRAM B.2**
OPEN SPACE CHARACTER

- Natural Lands
- Open Lawn
- Naturalized Planting
- Ornamental Planting
- Destination Garden
- Wetland
- Stormwater Amenity
- Tree

St. Olaf Property

0' 150' 300'

Scale: 1" = 300'

# B.4 OPEN SPACE USE

Students, faculty, staff, and visitors use the campus open space in a variety of ways. As on many college campuses the majority of open space is not overly prescribed. Therefore, use is determined, or enforced, by the location of plantings, pathways, outdoor furniture, and steep slopes.

Common outdoor activities are recreation, studying, socializing. The character of open space that is conducive to both activity and reflection, is critical to completing St. Olaf's core tenet of educating mind, body, and spirit.

### Art/Memorial/Landmark

The college has taken care to integrate and maintain art and memorials within the campus. Together with landmarks, these create recognizable points throughout the campus landscape, and support a rich evolving narrative of people and place.

### Destination Garden

Destination gardens have emerged as a typology due to pathways and seating areas that have been included within naturalized and ornamentally planted areas. The distinguishing factors for a destination garden are access, seating, and some sense of enclosure.

### Plaza/Porch

Plaza/porch spaces are defined as entry areas of various size that can be used as gathering space or outdoor pre-function space. These spaces are typically paved and have some type of seating, whether it is a bench or a seat wall. Examples of two significant Plaza/Porches are the south facing terrace at Boe Chapel and the south facing entrance plaza to Buntrock Commons. Both spaces accommodate large gatherings, often associated with a function inside the adjacent building.

### Courtyard

Courtyards here are defined as spaces that are enclosed by buildings. It is not a common typology on campus and many of the courtyard spaces were identified as having unrealized potential as outdoor spaces. Despite this, the courtyard typology has the unique potential to provide a counterpoint to a very open and visible campus character. There is also an opportunity to look to courtyards to provide cold-weather outdoor amenities.

### Multi-purpose Common

This central open lawn with open tree canopy that runs from the Southeast to the Northwest of the campus core is the series of informal quad spaces that are reminiscent of both historic ecosystems and of more formal collegiate quads. The central quad is the backdrop for circulation systems connecting most of the academic buildings. It is also used for recreation, study, and gathering.

The introduction of moveable furniture into the central quad in 2004 added tremendous value to the space and the result is a catalyst for the name of this campus typology. The moveable Adirondack chairs, conceived of by campus facilities, allow students to more fully inhabit the space through the act of creating and reorganizing temporary gathering areas based on need and desired use. These unique and comfortable chairs are also now an integral part of the campus landscape and help compose the St. Olaf identity of "place."

### Recreation Area

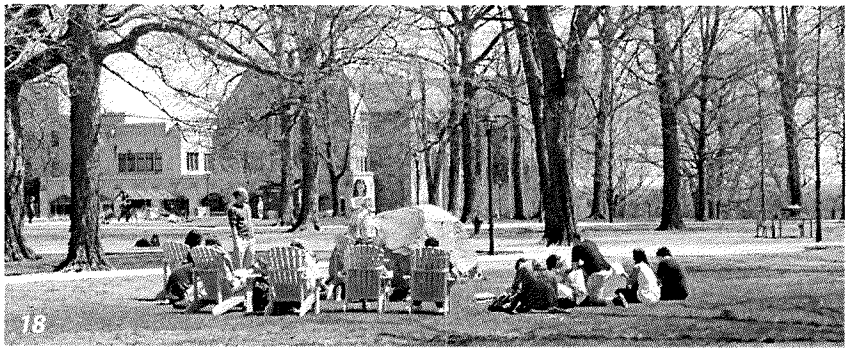
These highlighted areas are most commonly used and therefore associated with informal recreation. Some have a defined program, such as the sledding hills to the west of Thorson Hall and Old Main, or the disc golf course directly west of the campus entry from Highway 19. Others are open fields which are commandeered for pick-up sports and recreation such as soccer, Frisbee, and croquet.

### Grill

Grills have been installed near several of the residence halls. Students are welcome to use these at any time and may provide the coals and food. Because the grills are associated with residence halls, there's an opportunity to add amenities such as fire pits and furniture to these areas. That would create focal points of outdoor social space associated with student housing, which is not currently an open space typology on campus.

### Opportunity Space

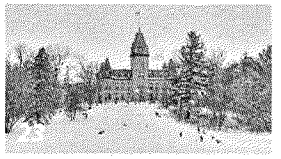
These are areas identified by Steering Committee members as having unrealized potential. There's an opportunity to add amenities or programming to these spaces to create new outdoor resources and draw users.




18. A class creates a temporary outdoor "classroom" in the central quad. 19. Students enjoying one of the gardens on campus. 20. Function hosted on Buntrock Commons' south plaza. 21. View of the new Loop Road and recreational lawn in front of Thorson Hall. 22. Students create a leaf pile in the fall. 23. Sledding on Old Main Hill.







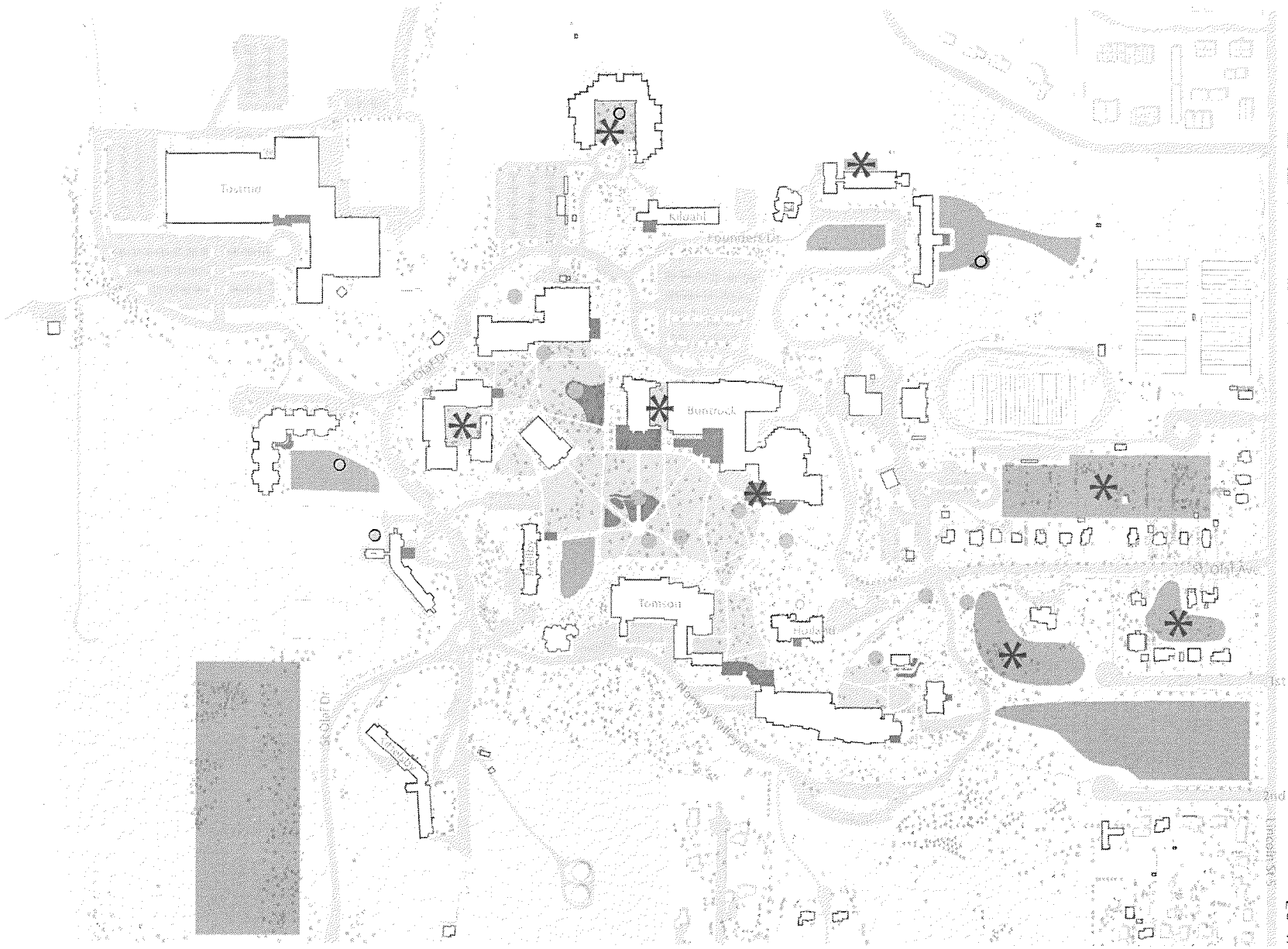



**DIAGRAM B.3**
OPEN SPACE USE

- Art/Memorial/ Landmark
- Garden
- Plaza/Porch
- Courtyard
- Multi-purpose Common
- Recreation Area
- Stormwater Amenity
- Sidewalk
- Grill
- Opportunity Space
- Tree

St. Olaf Property

0' 150' 300'
Scale: 1" = 300'

# **B.5** ATHLETICS AND RECREATION

Athletic, club sports, intramural and informal recreational spaces are distributed across campus. Athletics, in particular, is impacted by its split distribution to the east and northwest sides of the campus core. Additional challenges come from its location at the base of Manitou Heights – with no connecting pathways. The ability to add performance and practice space and fan parking space is constrained by the natural lands to the West of Skoglund Athletic Center.

## Athletic Field

The fields highlighted in this category are required for NCAA Varsity-level athletic training and competition. These include softball and baseball diamonds, the soccer field, the football stadium, and track and field facilities.

### Multi-Use Athletics and Intramural Recreation Field

These areas are used to support NCAA athletics requirements as practice fields but due to space constraints are also shared with intramural sports and general recreation.

### Recreation Area

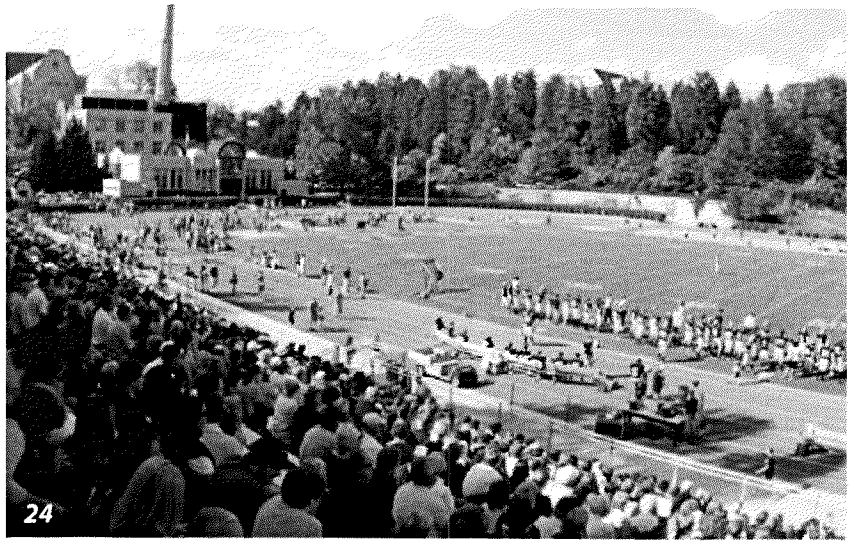
These sites are generally open areas that aren't used specifically by athletics teams but are used by the student body for recreation. The lawns behind Thorson Hall and Old Main accommodate intramural and pick-up games. The lawn in front of Ytterboe has been used for more structured recreation over the last 20 years including an ice rink in the winter and volleyball courts in the spring, summer, and autumn.

### Public Resource

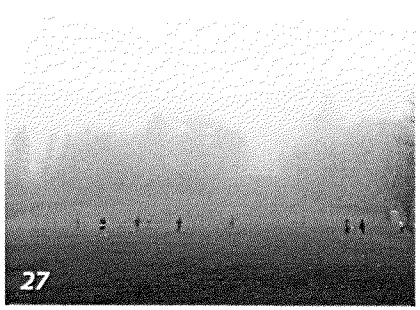
Northfield residents are welcome on campus to use a variety of sports facilities and recreational amenities. Typically, each attraction fills a specific community need. These include the tennis courts and the Tostrud Center as well as the two sledding hills, behind Thorson Hall and Old Main. This history of partnership and reciprocity creates both tension with student use as well as opportunities for future shared development of these expensive special use facilities.

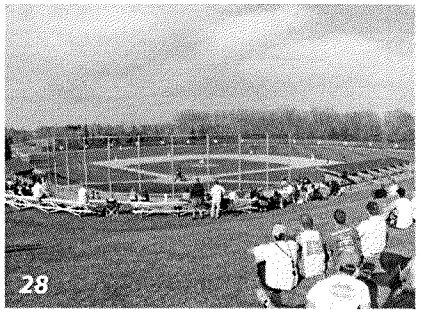
Current numbers indicate that around 30% of male students and 14% of female students play Varsity level sports at St. Olaf. Nearly 70% of the student body participates in recreational sports, including club, intramural, and casual recreation. The College supports the latter group with extensive fitness and recreation programs and has demonstrated a need for new sports amenities that have multifunctional features to accommodate diverse user groups.

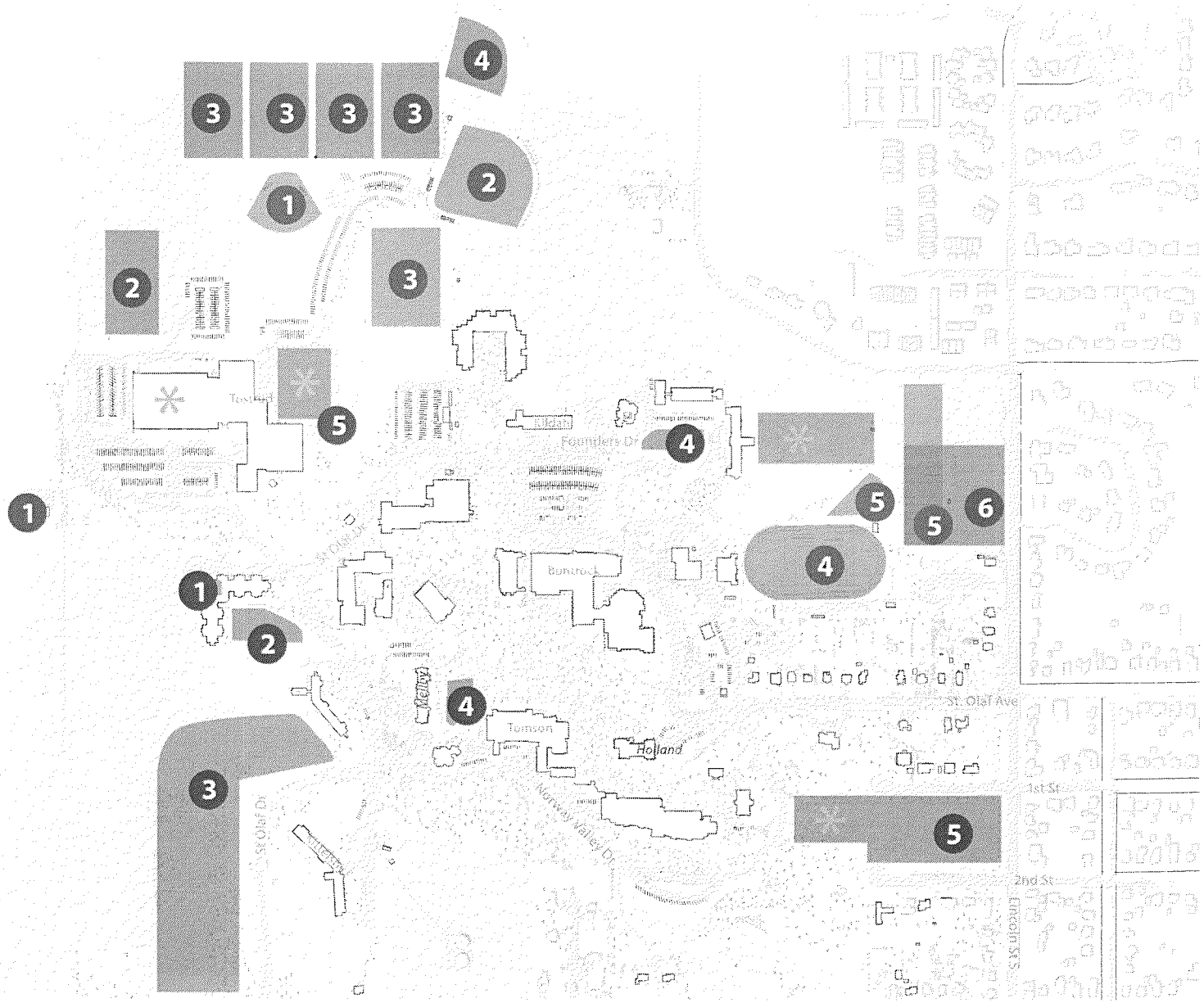
24. Assembly for a football game and view of Porter Hall
25. Women's cross country race through the natural lands
26. Athletics practice field along Lincoln Street
27. Intramural Ultimate Frisbee practice on Old Main Lawn
28. Mark Ajmi Baseball Field for Varsity Baseball








## DIAGRAM B.4
ATHLETICS AND RECREATION

**Athletics Field**

1. Softball
2. Baseball
3. Soccer
4. Football/Track & Field
5. Track and Field

**Multi-Use Athletics & Intramural Rec Field**

1. Yoga/Gathering Space
2. Cross Country Race Start Point
3. Multi-Use Practice/ Summer Camp Athletic Field
4. Extra Practice Field For Baseball/Summer Camp Use
5. Tennis
6. Football/Track & Field

**Recreation Area**

1. Indoor Cardio Studio Space
2. Intramural & Recreation Field
3. Frisbee Golf Course and Sledding Hill
4. Informal Recreation Field
5. Intramural Field

Public Use

St. Olaf Property

0 200 400

Scale: 1" = 400'

2

SECTION 2

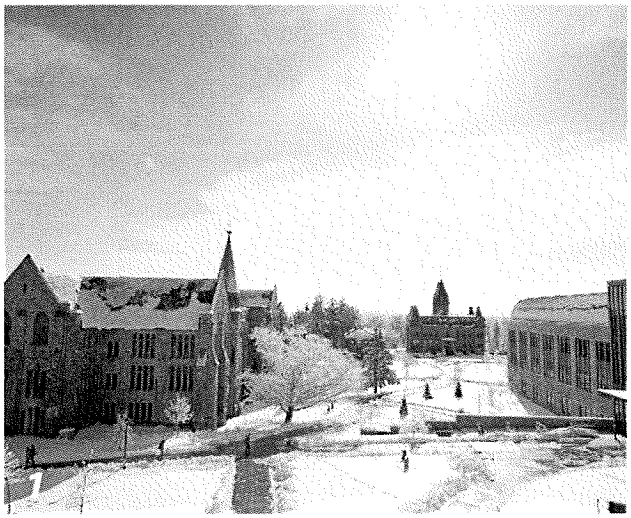
# EXISTING CONDITIONS ANALYSIS

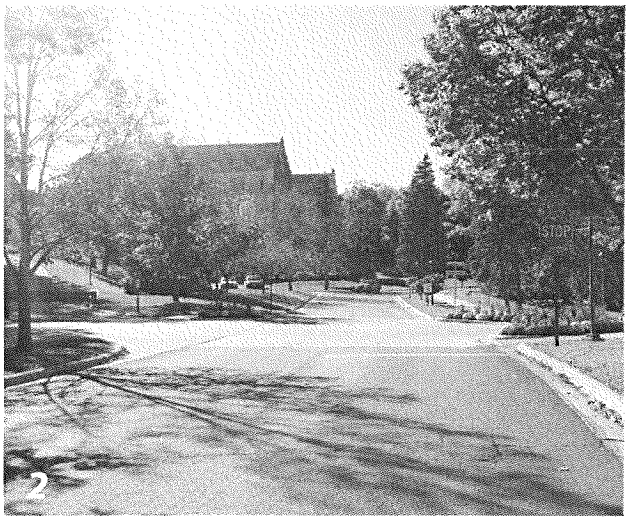
## PART C. CIRCULATION

C.1 Pedestrian Circulation

C.2 Vehicle Circulation and Parking

1. View from the Old Music Building, of Holland Hall, Old Main, and Regents Hall.
2. View from St. Olaf Avenue, of the campus entrance experience and Holland Hall.



# C.1 PEDESTRIAN CIRCULATION

Ninety six percent of students live on the St. Olaf campus and walking is the most common way to get around. The College maintains this residential, pedestrian environment in part by restricting access to vehicle parking to students who have a specific reason for requiring a car, such as off-campus work or medical needs.

Because most students are on foot, it is critical to prioritize safe and accessible pedestrian access to all parts of campus. In this stage of planning, three issues rise to the top as priorities: negotiating parts of the campus with steep slopes, ensuring safety and visibility in critical vehicle/pedestrian crossing intersections, and climate considerations, specifically wind tunnels.

## Circulation

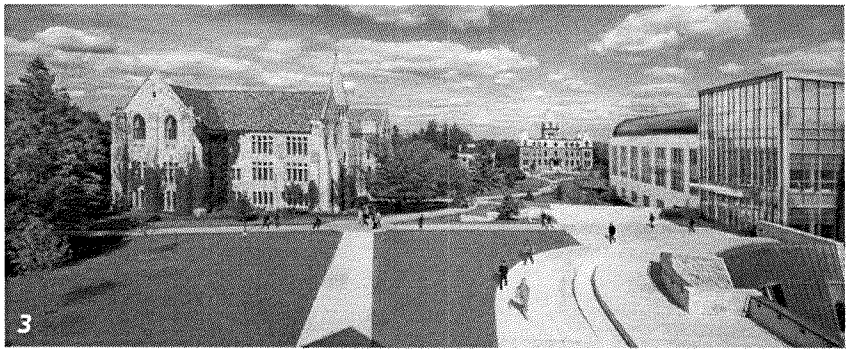
Paved sidewalks and crushed stone paths provide a comprehensive circulation network of campus walkways and Natural Land trails.

## Pedestrian Node

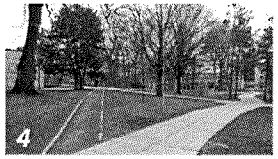
Nodes are natural gathering spots within the pedestrian circulation network. The college has supported this propensity to "pull over" and chat by adding large paved circles within the sidewalks, typically where paths intersect. The college walkways respond to "desire lines" created by students – where paved sidewalks are missing. Facilities staff are experimenting with crushed stone paths to accommodate popular "short cuts."

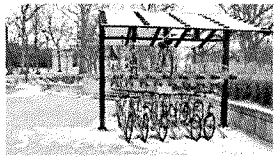
## Inaccessible Building Entrance

Although most of the college facilities incorporate universal design principals and all meet technical Americans with Disabilities Act (ADA) requirements, there are building entrances that currently do not meet "front door" ADA regulations, typically because of stairs. While all college buildings typically have an alternate ADA accessible entrance, this diagram highlights areas where special accommodations need to be made for students, visitors, faculty, and staff who are differently abled.



3. View from Old Music Hall of Regents Hall, Holland Hall, Steenland Hall, and Old Main.
4. Concrete and crushed gravel pedestrian pathways. 5. Covered bike parking outside of Rolvaag Library.







## Accessibility Issues

Sidewalks that traverse steep slopes typically have significant flights of stairs. Some highlighted areas do have alternative routes, but many of the alternative routes require walking on a road or going far out of the way to find an accessible route. One example is access to Tostrud and Skoglund Centers. The road is an alternative access to these facilities, but the slope is still significant and does not meet ADA requirements.

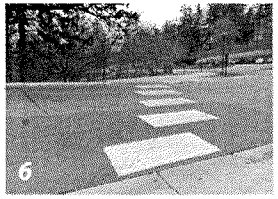
## Wind Tunnels

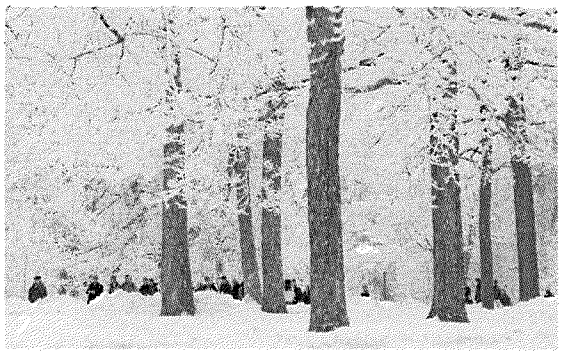
Wind tunnels are infamous at the top of the St. Olaf campus core. Particularly during the cold winter months, students, faculty, and staff find it challenging to walk comfortably between facilities - the microclimates on campus require walking against significant wind to reach key campus destinations. Mitigation strategies should be explored.

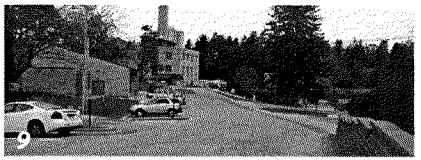
## Bike Parking

Bike parking has been added around campus and is available at most residence halls as well as the majority of buildings within the campus core. This is a natural extension to a pedestrian campus where access to cars is regulated. Given St. Olaf's parking restrictions, a surge in biking popularity, and the cold winter climate, students desire expanded accommodations for storing expensive bicycles in buildings. This will support students who do not meet the car requirements yet travel around the greater Northfield community. A bike rental program, currently not in operation, provided a covered bike rack in the Rolvaag Library entry plaza for the express use of that program.

6. Pedestrian crossing at Founders Drive, towards St. Olaf Avenue. 7. Students traversing campus in winter. 8. Stair ascending the hill at Old Main. 9. View of an identified pedestrian conflict zone along Founders Drive.







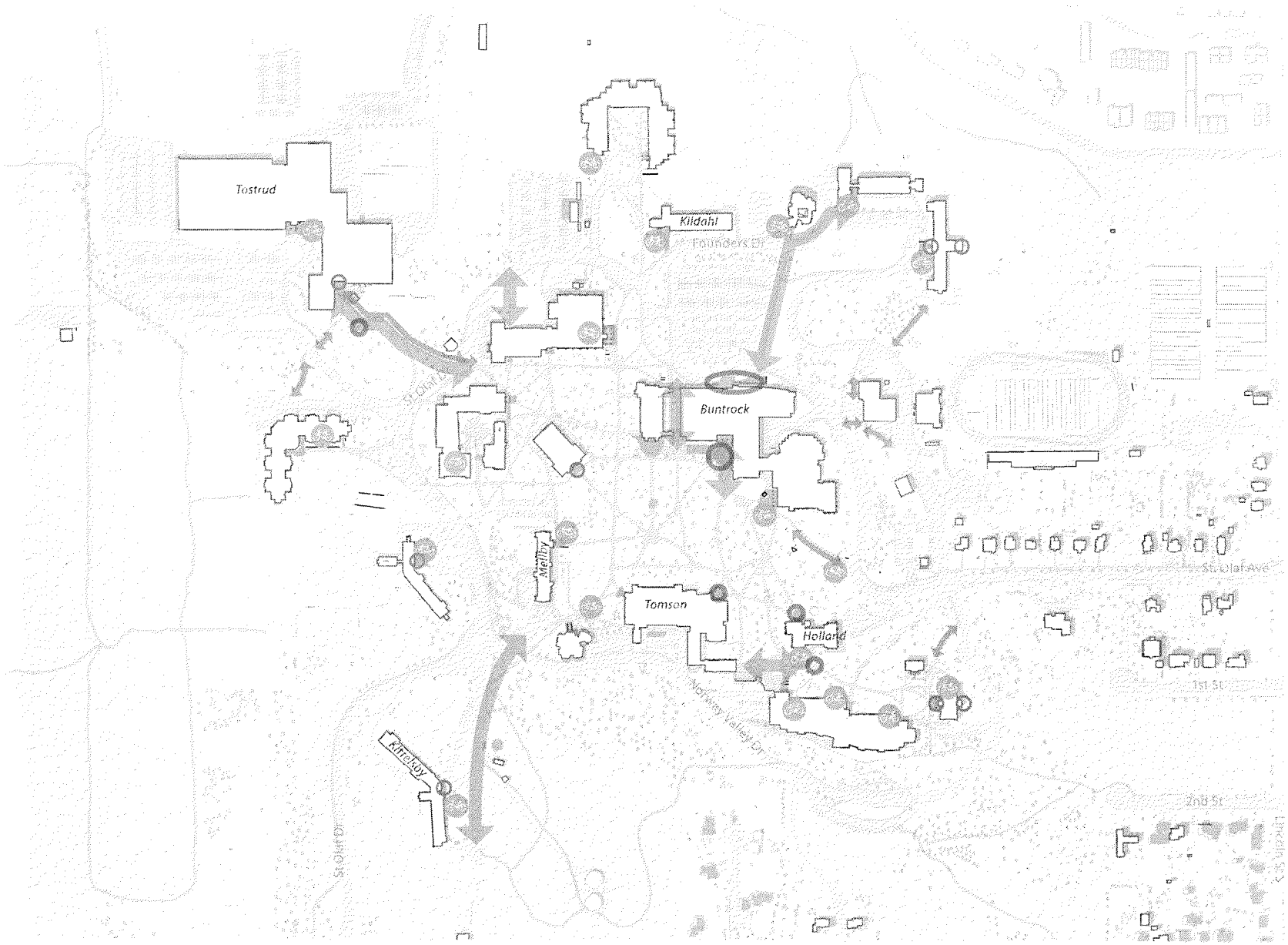



**DIAGRAM C.1**
PEDESTRIAN CIRCULATION

- Circulation
- Primary Building Entrance
- Pedestrian Node
- Inaccessible Building Entrance
- Accessibility Issue
- Wind Tunnel
- Bicylce Parking

0' 150' 300'
Scale: 1" = 300'

# C.2 VEHICLE CIRCULATION AND PARKING

### Campus Entry

Public access to the College is provided in two locations: the original ceremonial entrance from St. Olaf Avenue on the east and Highway 19 on the south. Currently, the majority of visitor traffic arrives from Highway 19. St. Olaf Avenue is used primarily by faculty, staff, and visitors who are Northfield and Carleton College residents. The entry experience of the two roadways is very different. The Highway 19 route is evolving from rural to suburban as business and residential development grows along Highway 19. The entrance is adjacent to a gas pipeline station and opposite an active nursery business and St. Olaf Facilities Support. St. Olaf Avenue, on the other hand, is an extension of the Northfield grid and lined with historic houses. As traffic patterns in downtown Northfield have evolved, the logical city intersection to direct a visitor to St. Olaf has shifted to Second Street.

Neither of the entrance drives is ideal for service vehicles. In effect, the campus has no back door. The gravel access drive from North Avenue is gated and reserved for college facilities and maintenance staff. Because of these restrictions, traffic is congested during major public events.

### Campus Loop Road

The primary feature of the campus circulation system is the Loop Road which surrounds the academic core. The Loop Road was originally an extension of St. Olaf Avenue, which had two main forks: one leading to Old Main, Steensland Gallery, Holland Hall, and Old Mohn Hall, and the second leading to Old Ytterboe Hall. In the last twenty years, the Loop Road has been reconfigured to reorganize parking and create a drop-off for Buntrock Commons, close Old Main Road and create Old Main Quad to construct Regents Hall, as well as improve open space for Thorson and Ellingson Halls.

Because of this pattern of modifying the road system to meet campus needs, the various segments of the Loop Road have different characters. Generally, the segment to the north of the college, along Christiansen Hall of Music and Dittmann Center is wider, open and has the character of a major drive. The segment to the south, along Tomson and Regents Halls, is narrow and has the character of a service drive. This is exacerbated by the lack of consistent walkways and planting for a safe pedestrian environments and steep slopes that make car travel difficult during icy conditions.

### Access Drives, Servicing, and Drop-Offs

Several access drives emanate from the Loop Road and extend to the natural lands and residence halls. The College has provided a good system of drop-off to the residence halls as well as many public venues. Significant exceptions include Alumni Hall, Dittmann Center, Kelsey Theater, Regents Hall, and Mellby Hall. Most buildings have convenient service access to either the Loop Road or a service drive with the exception of Speech-Theater Building, Steensland Hall, Old Main, and Boe Chapel These facilities require service vehicles to drive on sidewalks for access. As campus and regional development continues over time, changes to access roads should be anticipated. The section of Highway 19 south of the campus is evolving from rural to mixed residential/business development. Both the College and the City have proposed development along North Avenue. College stakeholders are interested in strengthening community ties as well as presenting a unified campus perimeter. All of these factors point to strategies that monitor encroachment from the metropolitan area and examine the advantages and disadvantages of additional access.

### Wayfinding and Pedestrian Conflicts

Critical intersections for wayfinding have been significantly improved over the past two decades. Traffic "roundabouts" and enhanced paving and planting have been added where both campus access drives meet the Loop Road. These recent renovations have created a more distinctive entry experience. But they have not completely addressed the comparable gateway experience at Highway 19 and Lincoln Street.

Other critical intersections include the intersection of the Skoglund access drive off of the Loop Road. The intersection combines with Ytterboe Hall's access drive to form a "Y" intersection at a major pedestrian crosswalk. Another area of concern is the area bounded by Dittmann Center, Kildahl, Mohn, Buntrock Commons and Boe Chapel. The vehicle congestions through this area is combined with significant pedestrian circulation traveling north/south from residence halls to Buntrock, the Library and the academic core. As a result, the roadways and parking lots are used as sidewalks in an area where drivers are making constant decisions about orientation and parking. Finally, Skoglund and Buntrock both support significant public events such as the Minnesota State High School Cross Country Meet and the Christmas Festival. Because the primary public entrance to the campus is from the south (Highway 19), with visitors directed to the Skoglund and Buntrock Parking Lots, traffic control and wayfinding during events can be difficult.

### Parking

The campus currently has on-site parking for 1,543 vehicles. Parking is primarily distributed across a variety of surface lots, plus parallel and head-on parking in numerous locations along the Loop Road and access drives. Parking is categorized into two types – student parking and faculty/staff/visitor parking. The majority of parking on campus is provided in large surface lots on the north side of the campus: S, I and J parking lots around Skoglund, B parking lot north of Dittmann Center, and A parking lot north of Buntrock.

### Student Parking

The college student parking policy requires resident students to park their cars at some distance from the residence halls - primarily within parking lots S, J, I, B, C, and H and off Lincoln Street. Northfield has restricted parking in the residential neighborhoods to the east of campus. Some illegal parking occurs in the residential neighborhood along First Street West. Several sections of the Loop Road, service roads, or drop-off roads are also used for parallel parking.

### Faculty, Staff and Visitor Parking

General parking is well distributed around the campus, especially along the Loop Road. Parking reserved specifically for visitors is located near Alumni Hall, Buntrock, Mellby and Tomson Hall but it is quite limited. This is offset by the ample general lots. However, faculty and staff have familiarity with the campus parking system, come early in the day, and are able to utilize the best locations of the general lots. Lack of clear signage, increasing day-to-day public use and a partnership with Carleton College to use Rolvaag Library exacerbates this hunt for available stalls. The dispersed location of general lots, the absence of sidewalks off the hill, and inclement weather can also encourage faculty to drive from one end of campus to the other. Finally, several lots are located in spaces which may be better suited as pedestrian open space, public drop-offs and view corridors, such as at Christiansen Hall of Music courtyard, Kelsey Theatre, Mellby and Holland Hall.

The St. Olaf Christmas Festival and certain athletic events generate the biggest parking demand on campus. The S and I parking lots are well situated for these events but require relocation of student parking to overflow lots. St. Olaf also has a beneficial relationship with the city to use the open land near Highway 19 and Forest Avenue for overflow "green field" parking.

10-11. Views of the intersection of Founders Drive and St. Olaf Avenue, looking westward

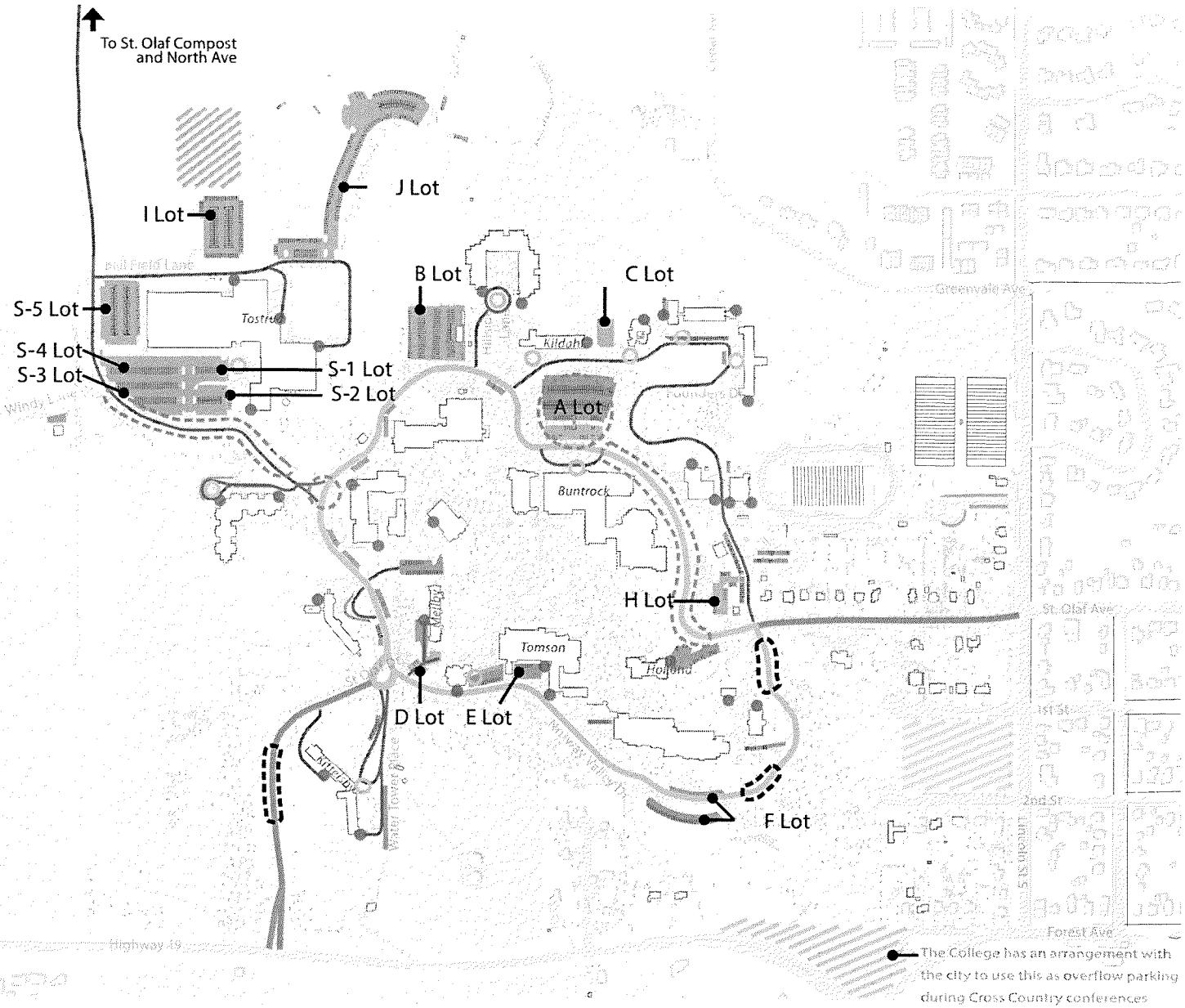




**DIAGRAM C.2**
VEHICLE CIRCULATION AND PARKING

- Campus Entry
- Campus Loop Road
- Access Drive
- Pedestrian Conflict
- Steep Slope
- Drop Off
- Service
- Student Parking
- Faculty/Staff/Visitor Parking
- Alternative I Lot Student Parking during Christmas Fest
- Overflow Parking
- Visitor Parking

St. Olaf Property

0' 200' 400'

Scale: 1" = 400'

# 2

SECTION 2

# EXISTING CONDITIONS ANALYSIS

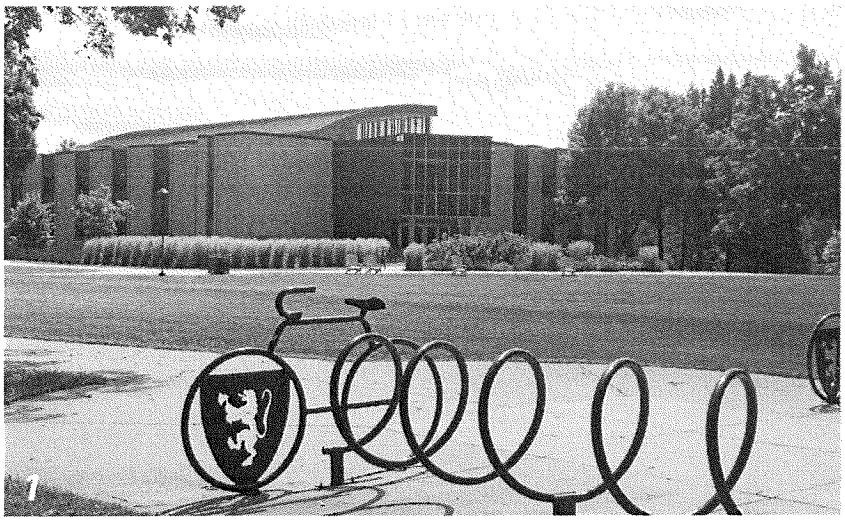
## PART D. SYSTEMS

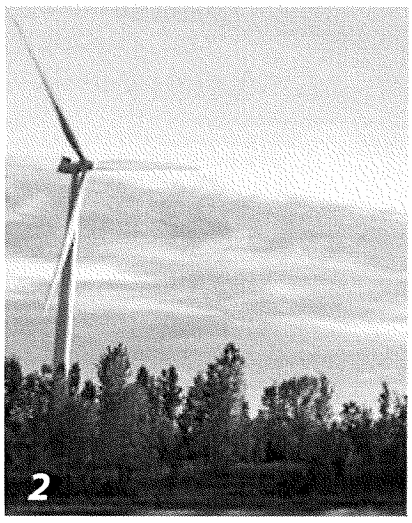
D.1 Infrastructure

D.2 Sustainability

D.3 Community Connections & Resources

1. St. Olaf College bicycle racks
2. St. Olaf wind turbine against the campus natural lands



# D.1 INFRASTRUCTURE

Campus infrastructure has been improved significantly over the past thirty years. The following section provides an overview of key infrastructure systems.

**Tunnels**

The College's tunnel system was started in 1905, the same the same year the first heating/power plant opened. An early commitment to distributing steam and electricity in tunnels has been key to the successful development of the campus. One original piece is still serving Steensland Hall; Diagram D.1 on page 79 is an approximate representation of the tunnel system. Most of the system has adequate room for maintenance and some additional system expansion. Today, all electricity, telecommunications, steam, and chilled water distribution is in tunnel, along with some of the domestic water piping.

**Steam**

In 1985, the campus was 1,350,000 gross square feet (GSF). The central plant served steam to all buildings through the campus tunnel system. On the coldest day, peak steam flow was about 75,000 pounds per hour (PPH). Today, with just under 2,000,000 GSF peak flow is under 60,000 PPH. In 1985, the plant housed three boilers, and one was out of service permanently. The 1967 addition houses a large built up boiler of 100,000 PPH capacity. The 1938 boiler room housed the defunct unit, and still houses a built up unit rated at 50,000 PPH. Both active boilers are dual-fueled, with natural gas preferred, and #2 heating oil the backup. 150 pound per square inch (PSI) steam is generated and distributed to the buildings, where appropriate pressure reducing valves (PRV) lower pressure to that required by each building.

Since then, controls have been upgraded to modern digital systems on the existing units, and a reverse osmosis makeup water system was put in place to improve control of makeup water characteristics.

In 2005, the out of service boiler was demolished and a highly efficient 30,000 PPH package boiler with a stack economizer was installed in its place.

All three boilers feed a header system that in turn feeds the campus steam distribution. Steam distribution piping is in campus tunnels, and this allows the chief engineer to tour the system weekly to note conditions. With this system in place steam production can be matched to seasonal system requirements, and there is 100% steam production redundancy. In addition, there is steam capacity for any elements the Framework Plan imagines.

**Chilled Water**

Chilled water for air conditioning is also produced in the plant and distributed to buildings through the tunnel system.

There are three centrifugal chillers totaling 2,400 tons. Heat from the chillers is rejected through cooling towers on the roof of the plant. Chilled water is pumped to the buildings through pipes in the utility tunnels in a large loop. The loop returns the now warm water to the plant to be re-chilled. All of the chiller and pump electric motors involved are controlled by variable frequency drives.

The difference between the calculated load and observed peak indicates a diversity factor of 70%. This means that the existing peak capacity of 2,400 tons might serve a calculated load of up to 3,400 tons. It is not known how many of the GSF imagined in the Framework will be cooled at this time, but there is capacity for additional cooled space. Each of the building projects of the last twenty years has outperformed its predicted cooling load and that has helped extend chilling capacity.

**Domestic Water**

St. Olaf had its own deep groundwater wells for many years. Water was pumped into the College water tower to provide storage and water pressure for the campus. In 1990, the College constructed an interface with the Northfield water system in order to extend firefighting capacity. The interconnection is housed in the stone building at the St. Olaf Avenue entrance to the campus. There are two pumps at this connection, one of 1,200 gallons per minute (GPM) that will operate the campus as long as is needed, and another smaller unit that can also supply the campus under slow conditions. This set-up is of great assistance during any times that the water tower must be out of commission.

At this time, the College has closed its wells and is now getting its domestic water from the City of Northfield. Northfield has two large storage tanks a short distance from the tower, and a pipe and pump system was constructed to supply the tower.

The water tower was thoroughly renovated in 2015 and is in excellent condition.

**Electricity**

Campus electric systems are quite robust and in excellent condition. In 1985, there was a 2,400-volt radial feed system in place. This was a maintenance problem and also caused efficiency issues because of lower than desirable voltage and cable sizes. The radial feeds made redundancy impossible.

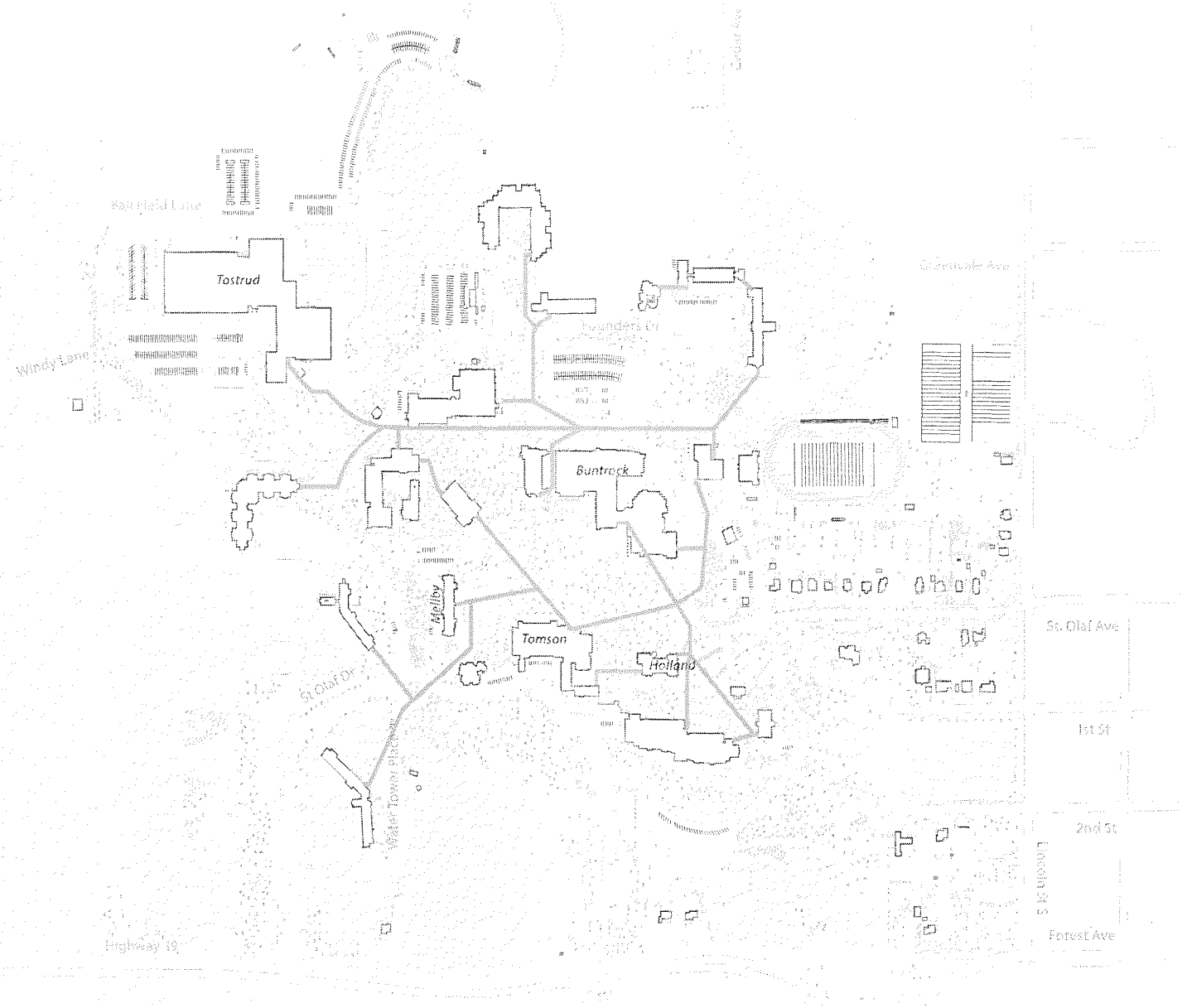
Over several years, a primary voltage (13,800-volt) multiple loop system has been put in place. There are three loops which can be connected to each other in different ways depending on the need. Each building has loop switches on either side of its service. That means that a fault of a loop cable can be isolated at the buildings on either side of the fault, and everything will still have power. In addition, capacity of the distribution system is greatly extended and can serve any of the Framework elements.

In 1999, the College constructed a generator building just south of the heating plant. The building houses three diesel generators that total 4.2 megawatts (mW). This project was inspired by the tornado event that hit Gustavus Adolphus College in St. Peter, and is primarily seen as a life safety enhancement. The Xcel electric service enters the building on its way to the plant and tunnel system. The controls include phase protection so that if even one of the three phases of primary power develops a small issue the generators will start, synchronize to each other and then the utility sine wave, and disconnect the system from Xcel. This is called a soft transfer and is invisible to campus users. If the Xcel service is completely interrupted, the controls disconnect from the utility, the generators start, synchronize with each other, and energize the campus. St. Olaf disconnects from the utility to avoid energizing part of the Xcel system while workers are engaged in repairs.

The College also uses the generator capacity to leverage the utility's load shedding rates. When the city or regional system is overloaded because of weather or generation issues, they call and ask the College to take its load over to relieve the system. In return St. Olaf gets a lower demand charge (demand is part of the overall electric bill), which has paid for the system many times. This system was designed for an imagined future load, but peak demand has dropped as new buildings and renovations increased efficiency, and so there is additional capacity available for this system as well.

The electrical system includes a 1.65 mW wind turbine that feeds the campus directly. The turbine supplies over 3,100,000 kWh of power to the campus, avoiding the cost of purchasing those kWh. The 2016 cost per kWh to St. Olaf was about $0.072, representing annual budget relief of $225,000. A 14 kWh photovoltaic (PV) system was installed when Kildahl Hall was renovated, and a 40 kWh installation is planned for the high west roof of Regents Hall of Natural Sciences. Finally, a 1 mW PV system has been designed for the area just south of the wind turbine, and a 500 kWh PV installation has been designed for the roof of the Tostrud Center.

**DIAGRAM D.1**
CAMPUS TUNNELS



# **D.2** SUSTAINABILITY

Sustainability has been a supporting element of the St. Olaf College mission, vision, image and identity, long before the term was popular among college campuses. The results of this commitment are evident in the physical campus of today. Continuing efforts to enhance college and campus stewardship should be supported in Framework Plan principles, concepts, recommendations and strategies.

## Sustainability Features

The St. Olaf buildings and grounds are full of features that visibly demonstrate a commitment to sustainability and often serve to reduce operating expense

The natural lands surrounding campus provide habitat and ecosystem services in addition to a place for recreation and learning outside the classroom.

Renewable energy is supported through an existing wind turbine that is a welcoming beacon when arriving from the west and solar panels on Kildahl Hall. When a planned solar garden is installed at the north of campus, St. Olaf will be carbon neutral in terms of electricity consumption.

STOGROW utilizes campus agricultural lands to directly support campus food production in addition to larger farm to fork efforts by Bon Appetit. Food waste becomes nutrients through an on-site composter.

Kittelsby and Hilleboe Halls, the environmental residence halls, are a focused example of the campus-wide sustainability program.

Efficiency in operations is a main objective for Facilities staff. The Madson Facilities Building includes additional programs such as backup generators and number 2 heating oil capabilities to cut costs and increase resilience to weather and energy-related events

## New Energy-Efficient Building

While St. Olaf has long held an ethos of durable and efficient construction, facilities built within the past ten years have capitalized on emerging sustainable construction methods as well as a renewed interest in passive design strategies.

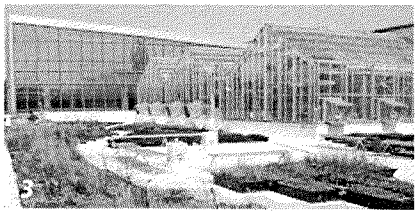
Regents Hall, the first undergraduate science-teaching building to be certified LEED Platinum, helped set new standards for campus construction in the development of Sustainable Design Guidelines.

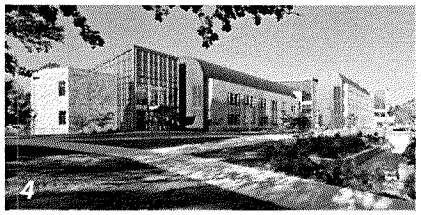
The collaborative process for building the Art Barn - engaging faculty and staff in its construction - and its gateway location to the natural lands, is as much a part of its sustainability story as is its highly efficient construction, use of reclaimed materials, and its preservation of campus heritage in the reuse of wood carvings.

## Full Renovation to Improve Energy-Efficiency

These buildings, renovated in the past ten years, have included substantial measures to improve energy efficiency, including spray-foam insulation on exterior walls and new windows, in addition to interior upgrades such as lights and mechanical systems.

While other buildings such as Buntrock are also relatively new, advancements in technology may make revisiting these buildings for efficiency upgrades worthwhile.



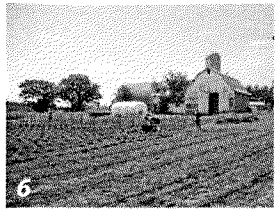


## Partial Renovation to Improve Energy-Efficiency

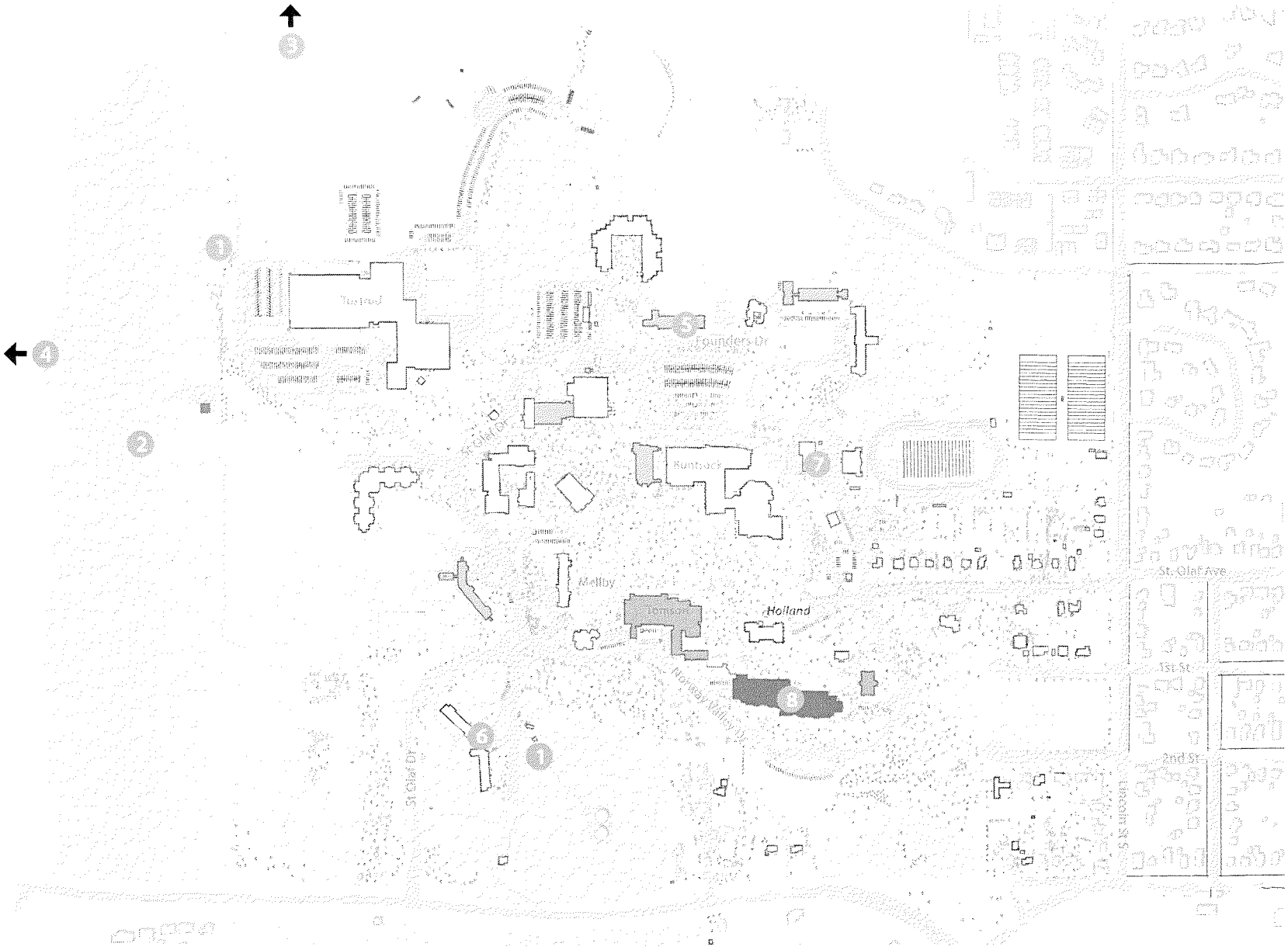
These buildings, renovated in the past ten years, have included interior upgrades such as lights and mechanical systems.

An honor house has been the subject of a hands-on renovation course, allowing students to explore principles of sustainable renovation and have an opportunity for involvement in the implementation process.

While other buildings such as Dittmann Hall have been renovated recently, advancements in technology may make revisiting these buildings for efficiency upgrades worthwhile.



3. Regents Hall green roof and greenhouse. 4. Regents Hall, first building on campus to receive LEED Platinum certification. 5. Stormwater detention and filtration on the east side of Regents Hall. 6. STOGROW Farm.




# DIAGRAM D.2
## SUSTAINABILITY

### Sustainability Features

1. Natural Lands
2. Wind Turbine
3. Composter
4. STOGROW
5. Solar Panels
6. Environmental Residence Hall
7. Campus Plant
8. LEED Platinum

New Energy-Efficient Building Built in Past 10 Years

Substantial Partial Renovation in Past 10 Years to Improve Energy Efficiency

Full Renovation in Past 10 Years to Improve Energy Efficiency

See Stormwater Features on Open Space Diagram

St. Olaf Property

# **D.3** COMMUNITY CONNECTIONS AND RESOURCES

St. Olaf College and its campus are part of a larger environmental, economic and social ecosystem. An analysis of the challenges and opportunities facing the College must be based on an understanding of its place within the larger Northfield community and southern metropolitan context.

Minnesota State Highway 19 is the primary public thoroughfare linking St. Olaf College with the greater region (via Interstate 35) and Downtown Northfield. It skirts the southern edge of the College and separates the core campus from several St. Olaf parcels of land to the south. The approaching views from both east and west, as well as the campus entry off of Highway 19, shape much of the public perception and wayfinding for visitors.

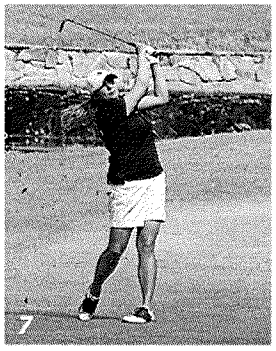
Several east-west local collector streets connect the College to Northfield. St. Olaf Avenue is the primary link between the campus and the City.

Area residents and visitors that approach the campus from Highway 3 along St. Olaf Avenue are led through an historic residential neighborhood to the original campus entrance. Unfortunately for eastbound traffic, the street does not have a direct connection to the historic downtown, retail core or Carleton College. Both pedestrians and vehicles must turn south on Highway 3 to reach Second Street. Second Street is also the route that connects Northfield to St. Olaf's eastern edge along Lincoln Street. This is a utilitarian approach, but it has a signalized intersection with Highway 3 and links to a bridge across the Cannon River.

Rural collector roads, such as Cedar Avenue, North Avenue, Old Dutch Road, and Armstrong Road, complete the surrounding vehicular movement system. In the past twenty years, development of Rice County and Dakota County farmland has continued to extend toward the campus. As the land surrounding Northfield and the College has become more residential, and the City has aspired to annex property and expand its tax base from non-residential uses, the rural collectors and College's undeveloped land will play an important role in shaping transportation and economic opportunity for both St. Olaf and Northfield. The discussions already underway regarding the location of a solar garden, Northfield Hospital expansion, potential Ole Village Retirement Community and Northfield Business Park all indicate the regional dynamics at play.

Over the past two decades, additional multimodal and environmental connectors have increased the connectivity between the campus and the community. These include the proposed Northfield Greenway Corridor, the proposed Regional Trail and proposed and existing bike trails. All of these provide amenities and enhancements for campus and community members – as well as wildlife – to move easily between St. Olaf and Carleton Colleges and the outlying natural lands and Arboretum.

Cultural and programmatic connectivity is also of increasing interest in the community. The proposed Northfield Arts Corridor location represents a great opportunity to build on the existing synergies between St. Olaf College, Carleton College and Northfield Arts Guild programming and facilities for performing and fine arts. Sports and recreation amenities, special events and facilities are also drivers for the public to visit the campus and St. Olaf students and staff to utilize community resources. These large-scale, special purpose venues do not warrant duplication across the two colleges and the city if they can be jointly-used while successfully meeting the scheduling requirements of each entity. Partnerships and joint-access arrangements have also begun to evolve around specialized academic facilities such as the St. Olaf and Carleton College libraries.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7. Golfer at Willinger Golf Course.
8. St. Olaf Hockey game at the Northfield Ice Arena.
9. Northfield Hospital volunteer group.
10. Exhibition at the Northfield Arts Guild.
11. Reading room in Rolvaag Memorial Library.


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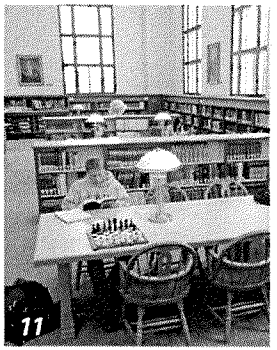
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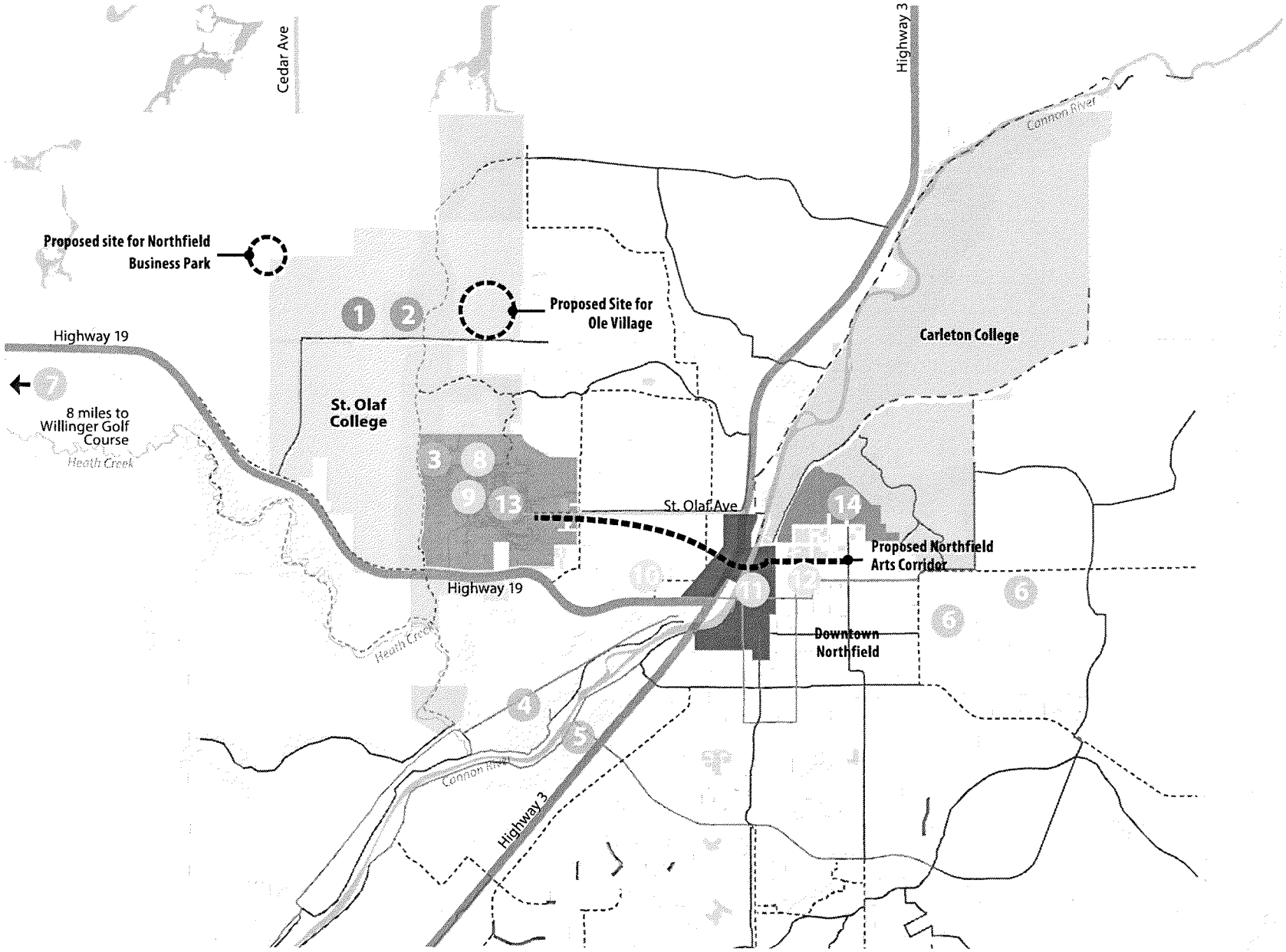


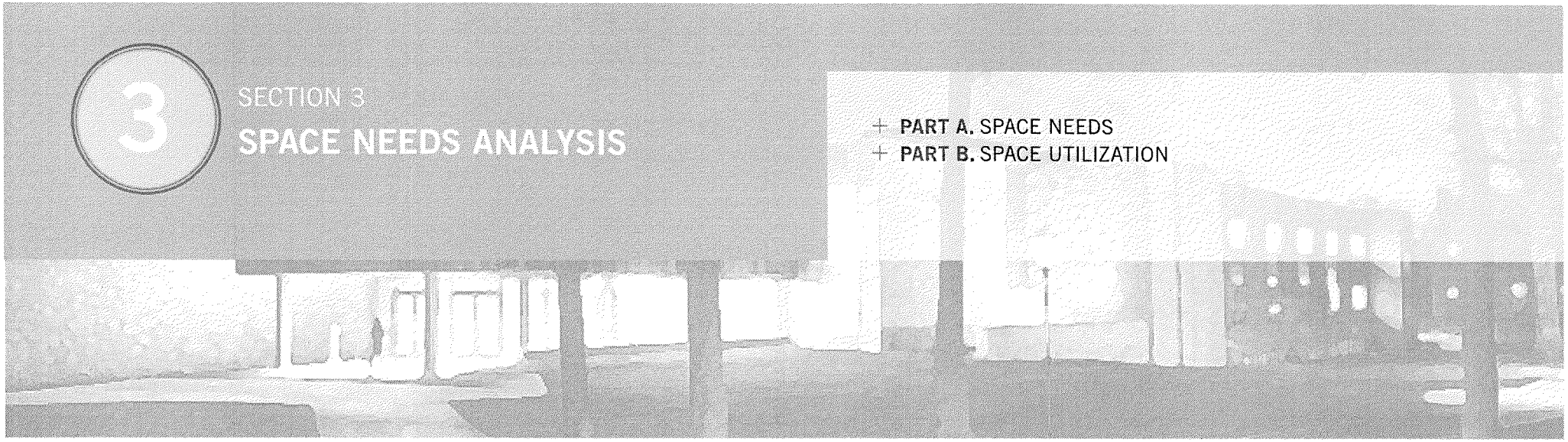

**DIAGRAM D.3**
COMMUNITY CONNECTIONS & RESOURCES

- College Campus Property
- College Campus Core
- Northfield Downtown Core
- Proposed Northfield Greenway Corridor
- Proposed Regional Trail
- Bike Route
- Proposed Bike Route

COMMUNITY RESOURCES

1. St. Olaf Solar Field
2. Northfield Hospital
3. Tostrud Athletic Center
4. Sechler Athletic Complex
5. Northfield Ice Arena
6. Northfield Golf Course
7. Willinger Golf Course
8. Christiansen Hall of Music
9. Dittmann Center
10. Northfield Arts Guild Theater
11. Northfield Arts Guild
12. Weitz Center for Creativity
13. Rolvaag Library
14. Gould Library

Scale: Not to Scale



# 3 SECTION 3
# SPACE NEEDS ANALYSIS

+ **PART A.** SPACE NEEDS
+ **PART B.** SPACE UTILIZATION

# **PART A:** SPACE NEEDS

## **A.1** INTRODUCION TO SPACE NEEDS

Understanding current and future space needs is a critical component to the design and implementation of the St. Olaf Framework Plan. A space needs analysis quantifies demand and demonstrates the potential need for new facilities and/or major repurposing of existing space. This section provides an overview of the analytical process, key findings, and implications for the Framework Plan.

Specific goals and objectives of the space needs analysis are as follows:

- Objective assessment of physical assets on the campus
- Understand how classrooms and laboratories are being used and benchmark against other colleges or St. Olaf aspirations
- Portray optimum space needs by functional area at target enrollment and staffing levels
- Analyze the difference between the optimum space needs from a quantitative perspective
- Strategize the physical response to the planning objectives as suggested by the space needs outcomes

### Analytical Process

The space needs analysis primarily consists of developing and refining a space needs model that incorporates the following data and criteria:

- Federal Index Classification Manual (FICM) (i.e., space taxonomy)
- Existing space inventory (provided by St. Olaf College)
- Current and projected student enrollment (provided by St. Olaf College)
- Current and projected faculty/staff projections (provided by St. Olaf College)
- Spring 2015 class schedule and registrants (provided by St. Olaf College)
- General guidelines developed by the Association for Learning Environments (formerly known as Council for Educational Facility Planners International – CEFPI)
- Perkins+Will square footage benchmark data from campuses throughout the United States
- Stakeholder feedback regarding conditions and needs specific to St. Olaf College

Figure X-1 provides a conceptual depiction of the process and inputs of the space needs model.

### Definitions

Although description of the space needs model is generally meant to be intuitive, there are two important terms that refer to the measurement of space that require definition. The first term is Assignable Square Feet (ASF). This refers to usable space assigned to a program (e.g., classroom, lab, dining facility, fitness center, etc.). It is measured from inside wall to inside wall and excludes public restrooms, elevator areas, stairwells, egress corridors, main circulation paths, mechanical/electrical/plumbing spaces, and structural areas. In contrast, Gross Square Feet (GSF) is a more encompassing measurement that includes all space within a building's footprint. When inventorying space, use of ASF is helpful for purposes of making comparisons from type of space category to another. However, when demand for space is translated into a need for new buildings facilities, it is critical that ASF be converted into GSF.

## **A.2** BASELINE DATA

This section presents baseline data used to populate the space needs model. The baseline data serve as the foundation or starting point with which the space needs calculations are based. All the baseline data was provided by St. Olaf College. It is important to note that the baseline data is a snapshot in time, and the point in time used for this analysis was August 2015. Unless otherwise noted, all data is from the Spring 2015 term.

### Enrollment

As of Spring 2015, there were 3,034 full time

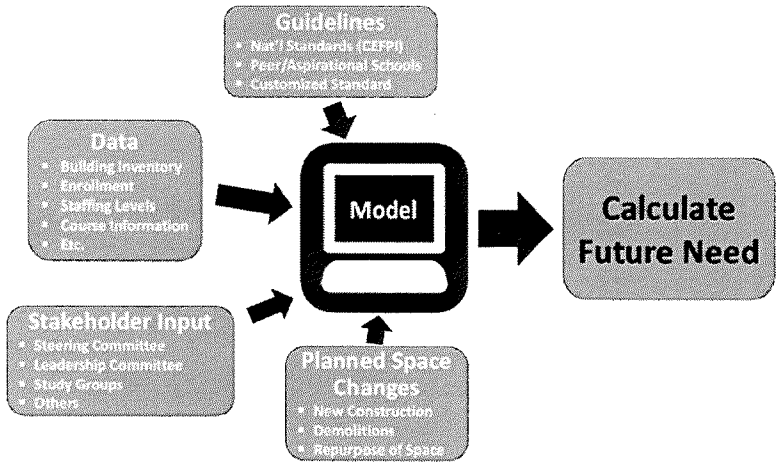



Figure 1 Conceptual Process and Inputs of the Space Needs Model

equivalent (FTE) students at St. Olaf College. Many of the calculations used in the space needs model are based on student FTEs. It has been assumed for purposes of the Framework Plan that enrollment will not substantively change in the near future.

### Faculty/Staff Counts

As of Fall 2015, there were 995 faculty and staff employed at St. Olaf College. For planning purposes, however, it is important to differentiate between employees based on their appointment level and whether they support academic or administrative functions of the college. There are 422 academic faculty and staff; of which, 363 have an appointment of 0.5 or higher, which guarantees them dedicated office space. There are also 573 administrative staff; of which, 461 have an appointment of 0.5 or higher.

### Building Inventory

Facilities staff conducted an inventory of all the existing space on campus in August and September 2015. Each space was classified based on the Federal Index Classification Manual (FICM). Assignable Square Feet were measured for each space. In total, about 836,000 square feet was classified. Table 1 lists the amount of ASF for each major FICM category and its percentage of the total. Athletic/Physical Education/Recreation represent the single largest category with just over 187,000 ASF or 22% of all the classified space. Office and related service areas, however, are a close second with over 170,000 ASF or 20% of all classified space. The smallest categories are Special Use with 3,200 ASF and Student Healthcare with 865 ASF, both of which account for less than 1% of all classified space.

### Course Information

All Spring 2015 courses scheduled through the Registrar were provided with the following information:

- Course number

- Course title
- Building and room number
- Classroom type (general classroom or lab/ studio)
- Meeting times
- Day(s) of the week
- Department
- Classroom seating capacity (per the Registrar)
- Course registrants
- Maximum registrants (per the Registrar)

# **A.3** SPACE NEEDS FINDINGS

## Overall Space Needs

Figure 2 presents data on the amount of existing space by major use categories as well as a guideline for appropriate levels of space based on enrollment, staffing levels, instructional needs, and conditions specific to St. Olaf College. The Academic and Student Life groupings appear to have a surplus of space. Meanwhile, the Library, Administrative, Athletics/Recreation, and Facilities Support groups have a deficit of existing space.

Athletics/Recreation has the largest calculated discrepancy. This is largely because of two reasons. One, St. Olaf has a very high level of participation in extracurricular sports, especially for a Division III school, with 27 different intercollegiate teams. Two, there are very few facilities that are dedicated exclusively to the Athletics department for use as practice or competition space. This means significant portions of the Skoglund Athletic Center and the Tostrud Center serve multiple purposes, including instruction, recreation space, and athletic space. If it is assumed that St. Olaf has a goal to provide adequate space for all these various sports-related needs, then there would need to be an additional 72,000 ASF of Athletic/Recreation space.



| Functional Classification of Space (FICM) | ASF | Pct. |
|---|---|---|
| Classrooms & Related Service Areas (100s) | 57,768 | 6.9% |
| Instructional Labs/Studios & Related Service Areas (210,215) | 79,106 | 9.5% |
| Open Labs & Related Service Areas (220,225) | 20,248 | 2.4% |
| Research Labs & Related Service Areas (250,255) | 26,735 | 3.2% |
| Office & Related Service Areas (300s) | 170,431 | 20.4% |
| Library (400s) | 103,768 | 12.4% |
| Physical Education/Recreation/Athletics (520,525) | 187,091 | 22.4% |
| Special Use (500s) | 3,210 | 0.4% |
| Assembly & Exhibit (610-625) | 42,072 | 5.0% |
| General Use (600s) | 90,626 | 10.8% |
| Support (700s) | 53,933 | 6.5% |
| Student Healthcare (800s) | 865 | 0.1% |
| **Total** | **835,853** | **100.0%** |

Table 1. Existing Space Organized by Functional Classification

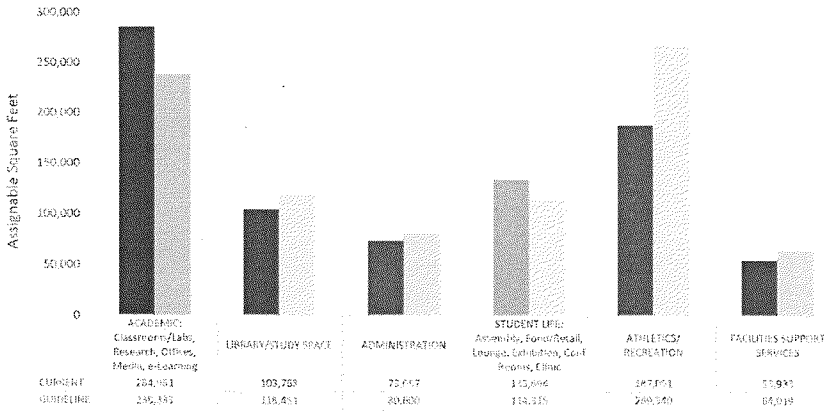



Figure 2. Campus Space Needs by General Use Categories

## Academic Space Needs

Figure 3 breaks down the detail by academic subcategory of where space is currently at a surplus or deficit. General Classrooms and Open Labs appear to be close to the calculated guideline. Media Production and e-Learning Support and relatively small categories. However, the Instructional Labs, Academic Offices, and Research space category appear to have a significant surplus of space.

## Library/Study Space

Figure 4 provides a little more insight into the current supply and demand for Library/Study space. The current amount of Stacks/Processing space appears to be closely aligned with the calculated guideline. Study space, however, has a significant deficit of space. This is attributed to recent trends in the evolution of study space. There is a strong trend toward more informal seating and study space. New standards suggest that as much as 35% of all formal or traditional seats that are located in classrooms and labs require complementary informal study seats for either individual or group study purposes. These trends are impacting the need for more study space as reflected in Figure 4.

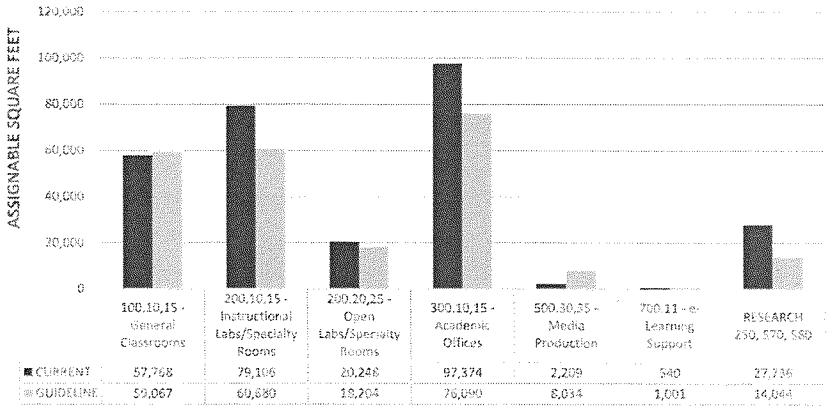



Figure 3. Academic Space Needs

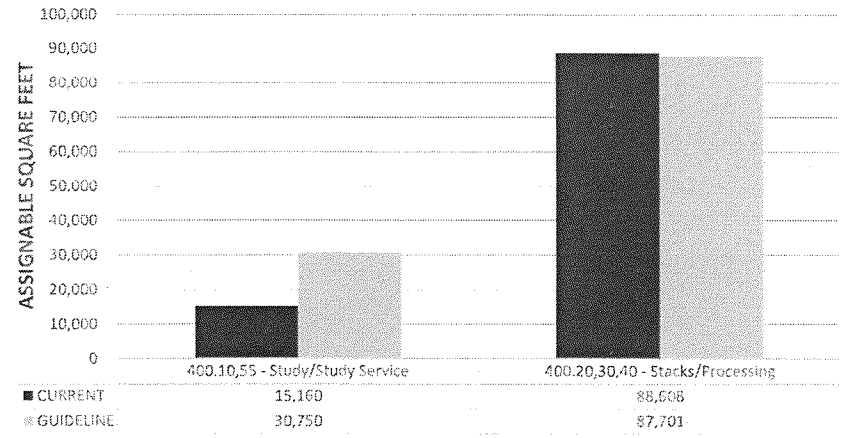



Figure 4. Library/Study Space Needs

### Student Support Space

Figure 5 shows that Assembly, Food Facility, Exhibition, and Student Healthcare categories are generally in line with calculated guidelines. This is despite the fact that the guidelines for Assembly and Exhibition space were increased substantially to reflect the heavy arts focus and programming at the school. In contrast, there is a significant surplus of Lounge and Meeting Room space. This may be the result of recent construction and renovation on campus that increased the amount of these types of spaces in anticipation of growing need in these categories.

# **PART B:** SPACE UTILIZATION

In support of developing appropriate guidelines for general classroom and lab/studio space, additional research was conducted to determine how these types of spaces are currently being utilized. Many times poor utilization of classroom and lab space can result in a mismatch between desirable spaces and undesirable spaces that can lead to a perception that not enough space exists.

Analyzing how instructional spaces are used has two primary components: room usage and seat usage. Room usage measures how frequently a room is being scheduled, whereas seat usage or utilization refers to how much of a room's capacity is being utilized when a course is scheduled for that room. There are a variety ways in which space utilization can be measured. Several different methods are presented here in order to provide a deeper understanding of the dynamics that drive how classrooms and labs are used.

General classrooms and labs/studio have very different functions and, therefore, analysis of these types of instructional rooms are treated separately.

## **B.1** CLASSROOMS

### Statistical Overview

- General Classrooms with Scheduled Courses = 70 (Spring 2015)
- Total Seat Capacity = 2,479
  - High: 120
  - Low: 8
  - Average: 35
  - Median: 29
- Scheduled Courses in Classrooms = 465
- Total Potential Seats in all Classroom Courses = 16,685
- Total Registered Students in All Classroom Courses = 9,932 (59.5% of capacity)

### Room Usage

Figure 6 present the average hours per week classrooms are scheduled based on their size. The dashed red line is St. Olaf College's Weekly Room Usage Goal in hours. Overall, all classrooms average about 21 hours of use per week, which is slightly below the goal of 24.5 hours. Mid-sized rooms, those with between 41 and 50 seats, exceed the goal. Generally, rooms with between 21 and 100 seats are used at or near the usage goal. It is the smallest (20 seats or fewer) and the largest (101 seats or more) that are used well below the goal. This is not uncommon as fewer courses tend to have small or large number of students. Also, in recent years, St. Olaf has had a policy of reducing the number of large courses with the intent of improving pedagogy, which may explain some of the poor room usage among large classrooms.

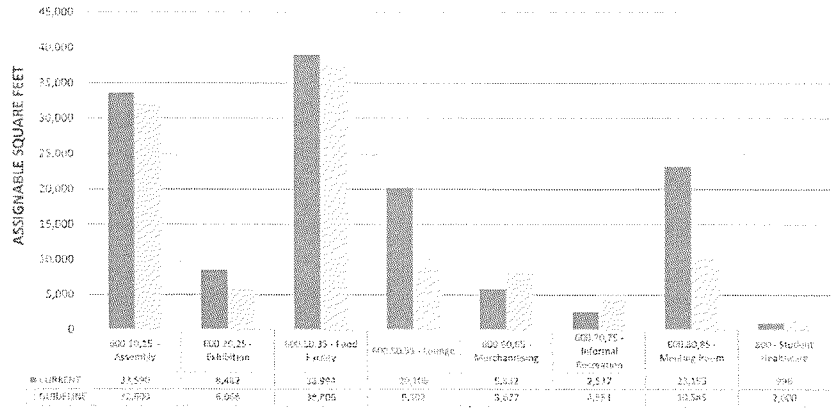



Figure 5. Student Life Space Needs

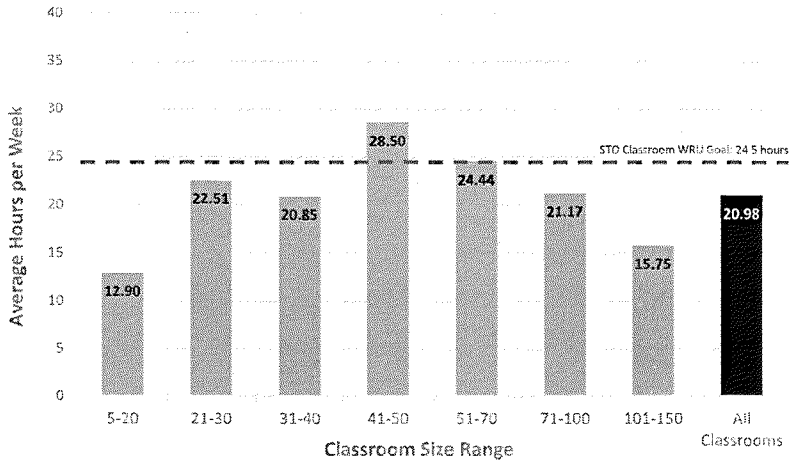



Figure 6. Classroom Weekly Room Use (Spring 2015)

Figure 7 tracks how classrooms are used by hour of the day and day of the week. This provides greater insight as to whether some rooms are not being used at particular times of the day or day of the week. Classes are regularly scheduled 8:00 am to 3:00pm. The graphs note the times of the day that St. Olaf reserves for the non-course activities of daily chapel time and weekly community time. Also presented is a weekly composite of room usage. From the graphs, it is evident that room usage peaks between the hours of 9:00am and 3:00pm in which usage goals are commonly met or exceeded. However, early morning hours and mid- to late-afternoon hours is when usage is well below stated goals. However, these are times that also compete heavily with extracurricular activities.

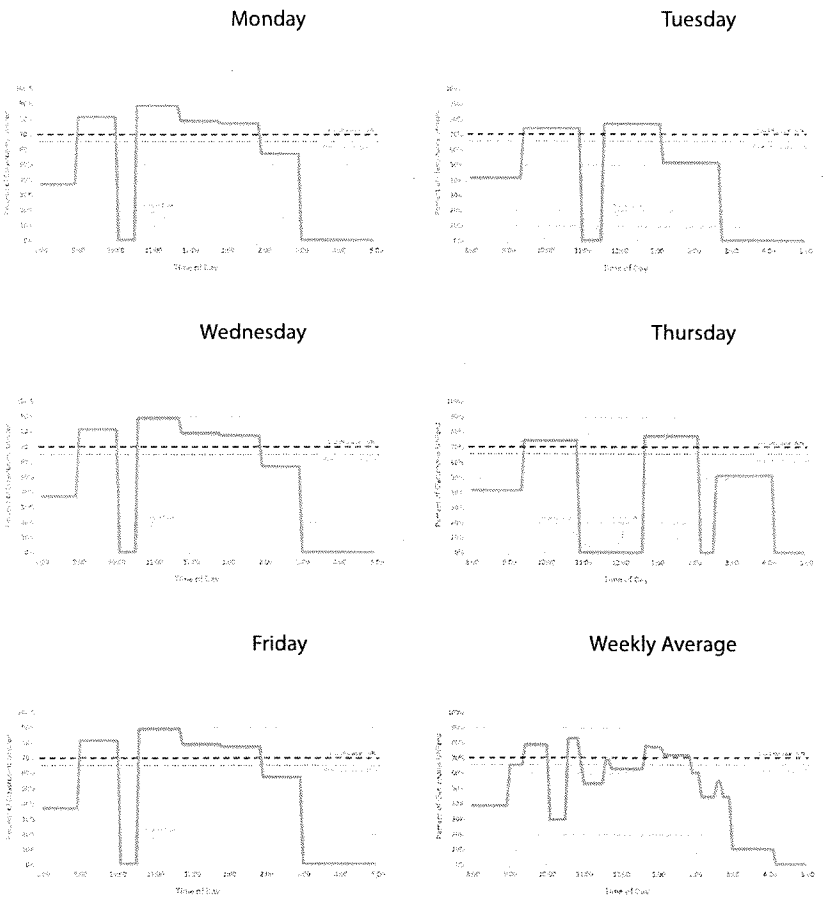



Figure 7. Classroom Daily Room Use by Time of Day (Spring 2015)

Figure 8 displays a comparison of course size and room capacity. This reveals how there is a mismatch between the number of small courses and small rooms. Again, some of this can be explained by school policy favoring small course sizes. As a result, though, a significant number of small classes appear to be scheduled in much larger rooms, which may have an impact on the learning environment. However, this also indicates a possible opportunity to repurpose larger rooms in order to better accommodate smaller course sizes. It may also indicate, though, that the room capacities as defined by the registrar may be out of line with the design of current course. This is especially true if there are more course designed around collaborative-learning which have larger per student space needs.

## Seat Utilization

Room usage just focuses on whether a room is being used at given time regardless of how many seats are being occupied. Figure 9 shows the percentage of available seat hours that are occupied by students depending on the size of the classroom. This requires an extra level of calculations that take into consideration the number of registered students in relation to size of room and how frequently the room is occupied. From the figure, it is evident that the smaller the room size, the higher the seat utilization. This again is somewhat to be expected as large classrooms clearly are able to accommodate classes of all sizes, which means seat utilization will decline if an increasing number of smaller classes are scheduled in large classrooms. However, overall seat utilization is around 59%, which is only slightly below the goal of 65%.

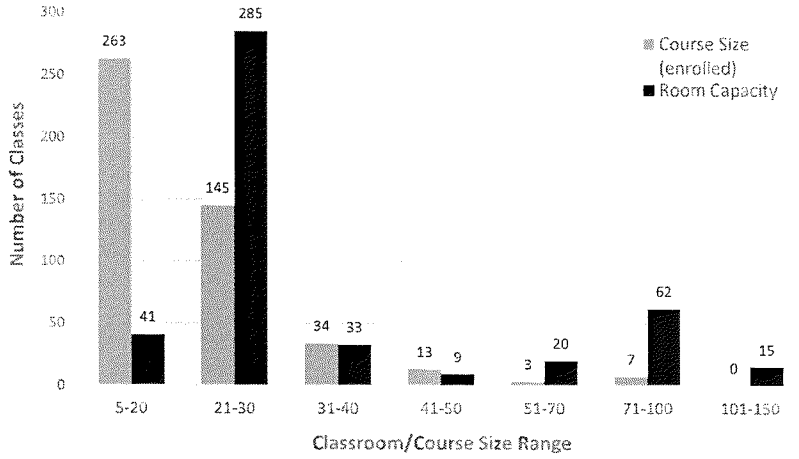



Figure 8. Number of Campus-wide General Classroom Classes by Enrolled Class Size and Room Capacity (Spring 2015)

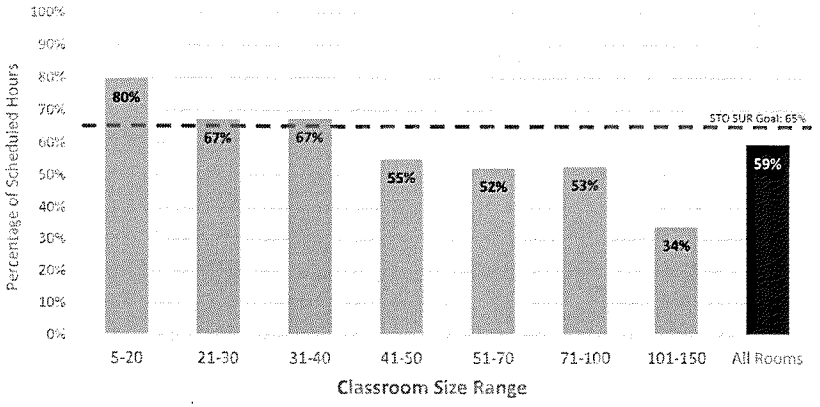



Figure 9 Classroom Seat Utilization Rate (Spring 2015)

Figure 10 provides the greatest level of detail regarding seat utilization. It depicts all 70 classrooms that had scheduled course in Spring 2015 and the average number of seats filled in each room relative to its capacity and 65% utilization goal. Smaller classrooms appear to more frequently meet or exceed the utilization goal. Although larger rooms tend to meet the goal as frequently, in many cases they are close to the goal and sometimes even exceed it.

# B.2 LABS/STUDIOS

## Statistical Overview

- Labs/Studios with Scheduled Courses = 54 (Spring 2015)
- Total Station (i.e. seat) Capacity = 1,606*
  - High: 124*
  - Low: 12
  - Average: 30*
  - Median: 30
- Scheduled Courses in Labs/Studios = 189
  - Total Potential Stations in all Lab/Studio Courses = 8,670*
- Total Registered Students in All Lab/Studio Courses = 4,862

* Does not include courses in gymnasia

## Lab/Studio Usage

Figure 11 presents data on the average number of hours per week labs and studios are scheduled based on the size of the room. Overall, the average hours of use per week is 10, which is half the goal of 20 hours. Unlike general classrooms, there is not a strong correlation between size of the lab/studio and its level of usage. This is due largely to the specialized nature of lab and studio spaces, which are not as flexible as general classrooms and typically cannot accommodate a variety course types. Therefore, the number of courses that can be scheduled in them is limited, which explains why room usage is much lower than compared to general classrooms.

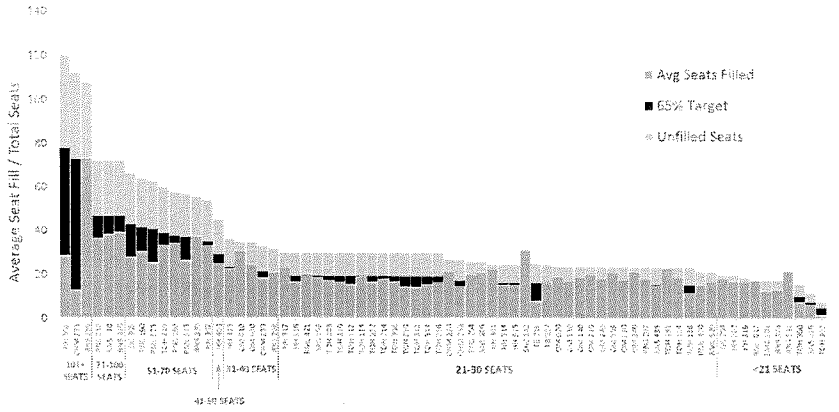



Figure 10. Seat Utilization by Classroom (Spring 2015)

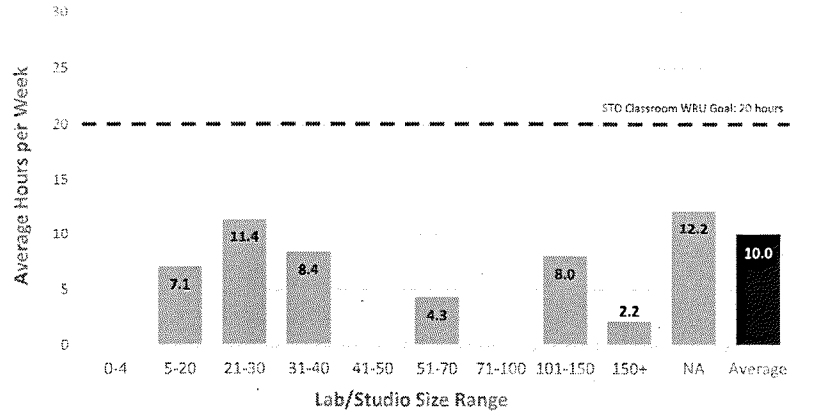
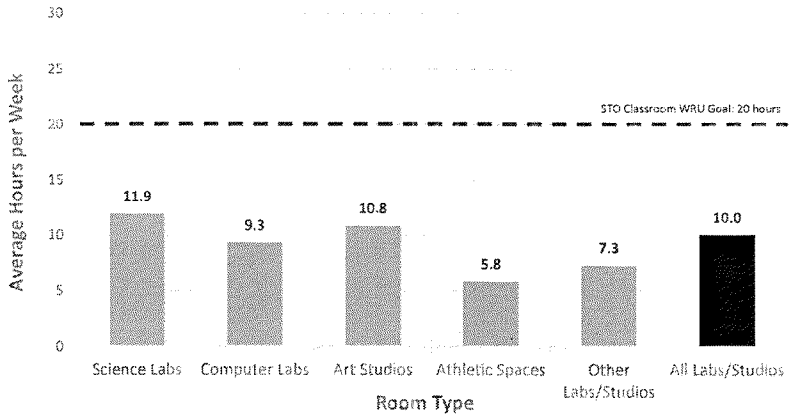



Figure 11. Lab/Studio Weekly Room Use (Spring 2015)

Figure 12 breaks down room usage by type of room. This is helpful because labs and studios differ significantly based on how they are used. Science labs and art studios are used the most, but still fall well below the goal of 20 hours per week of usage. Athletic studios are used the least. In addition to their unique nature, which makes flexible scheduling difficult, labs and studios are also challenged by the fact that they have inconsistent scheduling patterns that may require, for example, a longer block of time at odd times of day that precludes the space being scheduled for other courses.

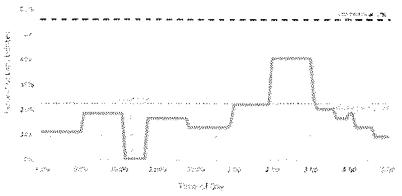
Figure 13 displays how labs and studios are used each day of the week and time of day. In general, Mondays, Wednesdays, and Fridays have lower overall usage with peaks occurring in the mid-afternoon. This is likely due to the prevalence of lecture components of many courses being scheduled during the mornings of Monday, Wednesday, and Friday. In contrast, Tuesdays and Thursdays have much stronger overall usage with peaks occurring in the mid-morning. The only times during the week when usage approaches the goal of 57% of labs and studios is mid-morning on Tuesdays and Thursdays.

Figure 12. Lab/Studio Weekly Room Use by Room Type (Spring 2015)

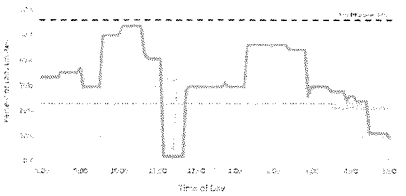




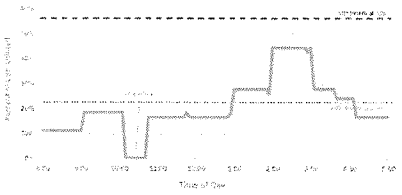

Monday



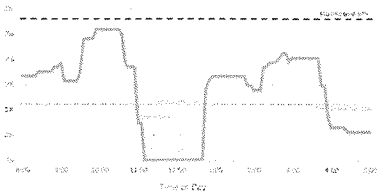
Tuesday



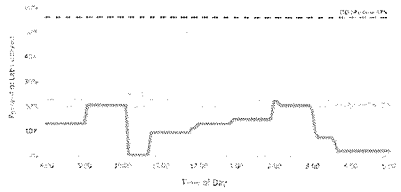
Wednesday



Thursday



Friday



Weekly Average

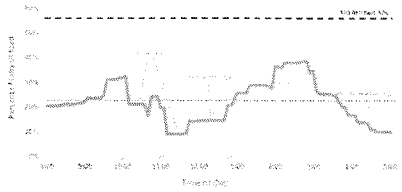
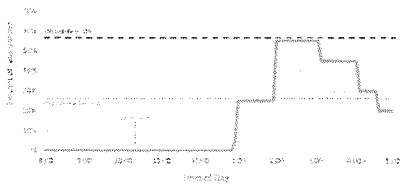


Figure 13. Daily Lab/Studio Room Use (Spring 2015)

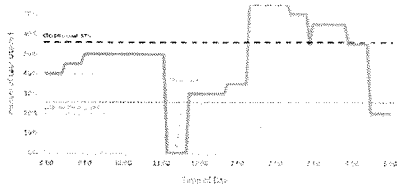
Figure 14 illustrates how types of labs can vary significantly in when they are used. The figure isolates the usage of Science Labs by day of week and hour of the day. These types of labs have a very strong orientation to being used in the afternoon. So strong, that several days each week usage exceeds the 57% threshold of use during these time.



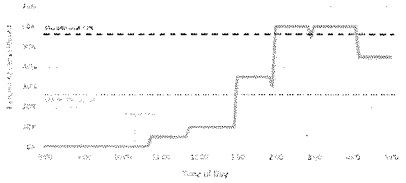
Monday



Tuesday



Wednesday



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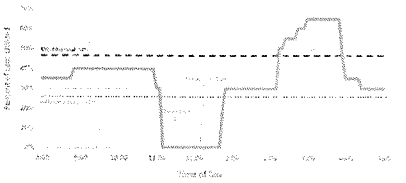

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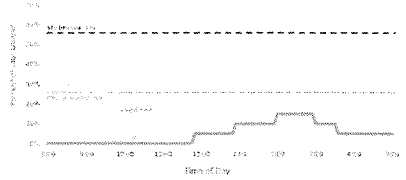


Weekly Average

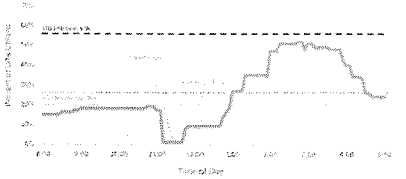
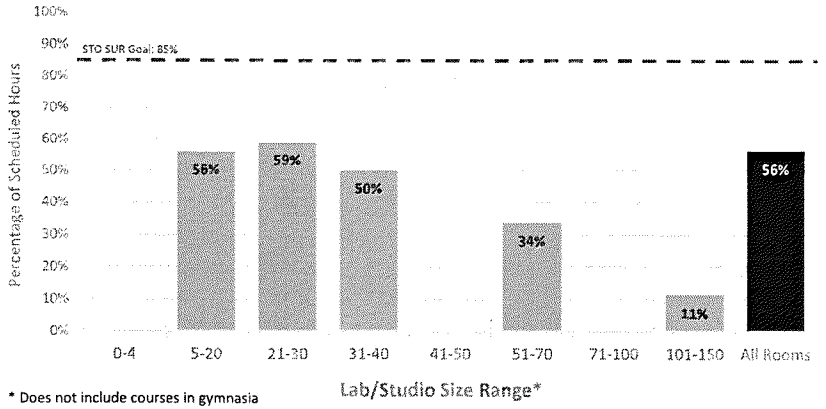


Figure 14. Daily Science Lab Room Use (Spring 2015)

## Seat Utilization

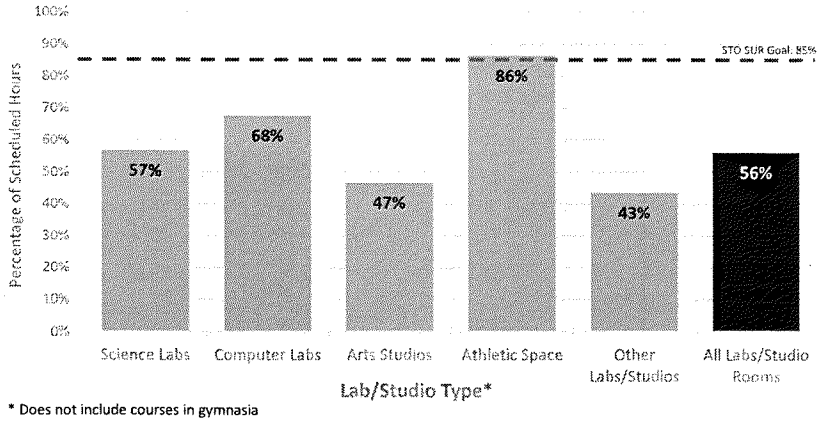
Figure 15 shows seat utilization by size of lab/studio. Overall, seat utilization is 56%, which is well below the utilization goal of 85%. The goal for utilizing lab and studio space is higher than general classrooms because these spaces are more difficult to schedule. Therefore, when scheduled, they should be utilized at a higher rate. Labs with smaller student capacities have higher utilization rates than. Utilization of lab and studio spaces, however, can also be impacted by the amount of square footage each student requires when using the space. Large equipment needs for certain types of labs may, for example, require a substantial amount of space on a per student basis. If room capacities are not adequately measured, this would result in lower or higher utilization rates per the school's goal.

When looking at labs/studios by type (see Figure 16), Athletic studios have the highest rate of seat utilization at 86%, which is just over the goal of 85%. However, this does not include courses in gymnasia, which can vary considerably because of the extremely large size of the space. Computer Labs are the next highest level of utilization at 68%. Art Studios and Other Labs/Studios have the lowest utilization. Again, this may be a reflection of the fact that Arts Studios have a strong need to be highly flexible in the size of the courses they accommodate.




* Does not include courses in gymnasia

Figure 15. Lab/Studio Seat Utilization Rate by Room Size – All Labs/Studios (Spring 2015)




* Does not include courses in gymnasia

Figure 16. Lab/Studio Seat Utilization Rate by Room Type – All Labs/Studios (Spring 2015)

Figure 17 lists the average seat utilization for each of the 52 labs/studios scheduled for courses in Spring 2015. (This does include courses in gymnasia.) The vast majority of labs and studios have a capacity of 30 seats or less. Those with a larger capacity, clearly have very low utilization rates.

## **B.3** BUILDING USAGE BY TIME OF DAY

Measuring the use of buildings throughout the day can provide meaningful insight on how the focus of activity can shift from one part of campus to another. The course schedule was augmented with data on other scheduled student activities (e.g., intramural sports, student organizations, rehearsals, etc.) to create a clearer picture of where students may be concentrated. It should be noted that the extracurricular student activity captured in this analysis is an estimate based on known student organizations and departmental activities. It does not include informal student activities or organizations, student worship, non-scheduled recreation, or study groups.

Because buildings are already somewhat clustered based on similar activities, the data analyzed on building usage was aggregated at a "district" level. For example, an Arts District was defined as Christiansen Hall of Music, Dittmann Center, and the Speech-Theater Building. An Athletics District was defined as the Skoglund Athletic Center and the Tostrud Center. A Science District was defined as Tomson Hall, Regents Hall, Holland Hall, and Old Main.

Figures 18 through 21 show the number of students in each campus district by time of day. Black bars note scheduled class or lab activities, whereas the gold bars depict scheduled, non-class activities. Based on the figures, there is a pronounced shift in scheduled student activities from the Science District in the morning hours to the Athletic District in the evening hours with the Arts and Student Center districts having a consistent level of scheduled student activity throughout the day but at much lower volumes.

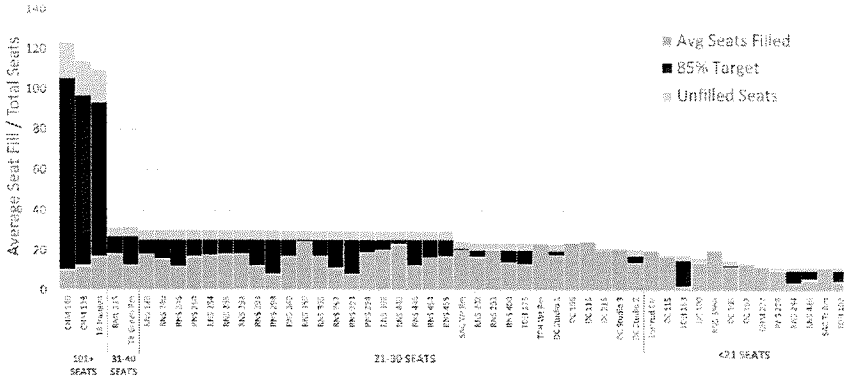



Figure 17. Seat Utilization by Lab/Studio (Spring 2015)

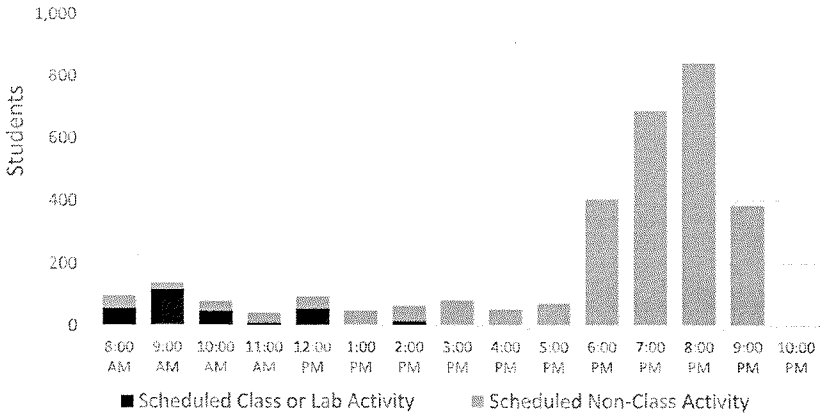



Figure 18. Athletic District (Skoglund, Tostrud)

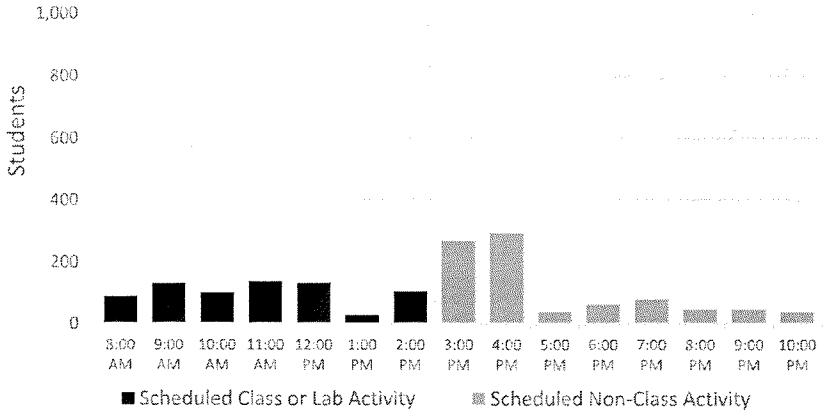



Figure 19. Arts District (Christiansen, Dittmann, Theater Building)



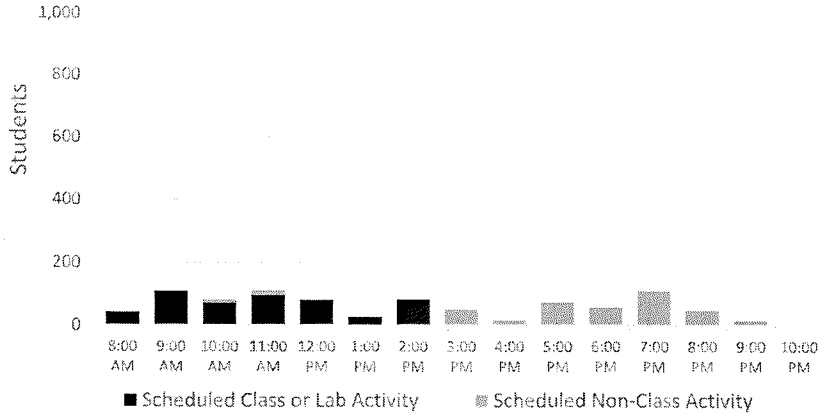



Figure 20. Student Center District (Bow Chapel, Bentrock Commons, Rolvaag Memorial Library)

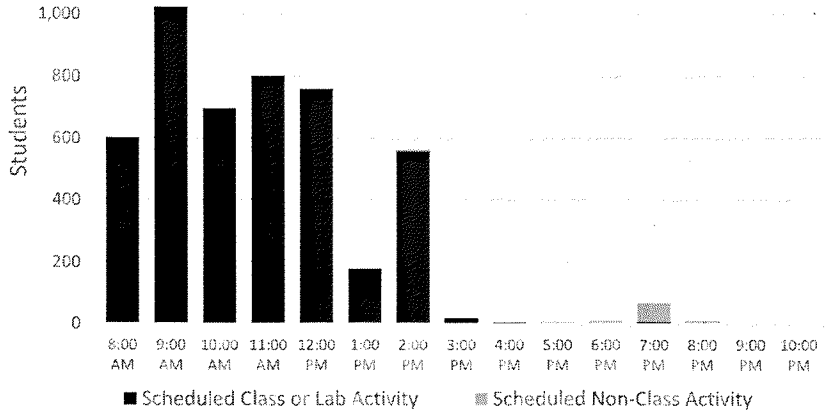



Figure 21. Science District (Tomson, Regents, Holland, Old Main)

# 4 SECTION 4
# FRAMEWORK PLAN DESIGN



4

SECTION 4

# FRAMEWORK PLAN DESIGN

## PART A. FACILITY DEVELOPMENT SCENARIOS

# FACILITY DEVELOPMENT SCENARIOS

## A.1 OVERVIEW

Potential facility development zones have been identified throughout the campus core to accommodate physical space improvements needed over the course of the next 20 years. They address gaps identified in the space needs analysis, opportunities to renovate or repurpose existing facilities to their highest and best use, and ongoing capital planning to support an exemplary academic and residential liberal arts experience.

The outlined building zones represent the recommended maximum floor plates for building additions or new buildings on a specific site. These zones are not to be interpreted as proposed building footprints; they are an approximation of the size of the program element they house based on national standards or benchmark facilities at peer institutions. They are also configured to incorporate past facility planning for St. Olaf as well as respect setbacks, vistas and open space shaped by the existing pattern of campus buildings. Additional information about campus open space opportunities can be found in Section 4, Part C (Open Space Opportunities).

Three scenarios for facility development are shown. Building sites are shown color coded by academic program type and facility use. Although building sites may become more flexible if the loop road is relocated outside of the campus core, the scenarios are (for the most part) shown superimposed on the campus existing roads. Additional information about campus circulation and parking opportunities can be found in Section 4, Part B (Circulation Scenarios). Generally, building sites from each scenario can be flexibly interchanged. This is especially important given that, other than projects that are planned and underway, there is no assigned phasing or time frame for their implementation. The intent of the scenarios is to provide St. Olaf College with a tool to assit decision-making around facility improvements and campus development needs. A full range of opportunities and constraints for each site can be examined in detail at the appropriate time.

Each scenario is grounded on the assumption that current planned facility improvements will go forward and be completed by 2020. These projects include:

- Holland Hall renovation to provide a 21st century learning environment for the Social Sciences and Humanities
- Larson Hall renovation to improve mechanical, electrical, and plumbing (MEP) systems; building enclosure systems; lower level social spaces and bathrooms
- Continued renovation of Steensland Hall
- Conversion of Manitou Field from lawn to artificial turf
- Science Library collections relocation to Rolvaag Library and renovation of the vacated Regents Hall lower level space for the Nursing and Science Departments
- Continued renovations to existing residence halls to address ongoing capital renewal projects, accessibility concerns and living/learning opportunities – including improvements to Hilleboe, Kittlesby, Mellby and Ytterboe Halls. Thorson Hall would benefit from a broader range of room configurations and additional accessible social space. Past planning has studied small additions that would respect the building's architectural style and historic facades.

Topics around which there were detailed discussions by the St. Olaf Framework Plan Study Groups during the planning process include:

- A multipurpose Performing Arts Center (PAC) – including all theater department programs and three major performance venues - Black Box (approximately 90 seats), Thrust Stage (approximately 300 seats) and proscenium stage (approximately 900 seats)
- The conversion of the Skoglund Field House to an ice sheet, a replacement, multipurpose fieldhouse, and flexibility for a second ice sheet. A second sheet of ice would require relocation of the existing tennis courts and the potential for an enclosed tennis center.
- The relocation of the Facilities Department facilities currently situated south of Highway 19.
- An interdisciplinary space to showcase collaboration across the curricula. This may include a learning makerspace. According to the Associated Colleges of the Midwest (ACM), *makerspace* is space that contains technologies and tools to allow for creative design and experimentation.

Looking forward twenty years, needed or highly desired facility improvements were also identified that support envisioned academic and student life programs. These components may be funded over time through a combination of future capital campaigns, philanthropy, grants and donations, annual capital expenditures and off-campus public or private partners and include:

- A new Natatorium/Aquatics Center addition to Skoglund Athletics Center – as well as repurposing and renovation of existing pool and locker space to better support Exercise Science, Athletics, Intramurals and Club Sports. Internal planning of Skoglund would need to be considered to maximize the efficiency and synergy of consolidating this function as an addition in lieu of a freestanding building (for example, lobby and student support spaces could be shared).
- Expansion of the Music Library to Christiansen Hall – including an addition to the west side of the facility based on previous design studies
- Because the Strategic Plan does not envision expanded enrollment, new residence halls are primarily needed to provide alternative housing choices, decrease density or the utilization of triple-rooms, and increase social and study space. New/replacement student housing is also intended to improve housing options for Seniors, persuade off-campus students to re-consider living on campus and replace aging single family homes that are difficult and expensive to maintain. Historic houses along St. Olaf Avenue could be relocated elsewhere on college property. New development sites and footprints are based on previous design studies for a "town-house" prototype.
- Improved, relocated space for special collections, archival materials and processing within Rolvaag Library
- Mellby Hall could be configured to provide swing space for Residence Life housing stock when additional on-campus housing is needed. Past Framework Planning studied a small addition to help meet ADA requirements and provide additional flexibility for program improvements.
- Relocated football field in combination with existing soccer field improvements
- Tom Porter Hall renovation for Exercise Science
- Urness Recital Hall renovation
- Rolvaag Library renovation providing expanded quiet and active study space.
- Theater Building repurposing – providing Art Faculty Studio Space to research and explore media and techniques as well as active student makerspace for collaboration
- Providing a College Welcome Center and potential front door location for Alumni and Advancement outreach. Potential repurposing of Alumni Hall for expanded practice and academic office space could be considered with this opportunity.
- Parking and transportation facilities to promote multimodal campus circulation and replace parking stalls lost to new facility construction, open space and stormwater management enhancements, or road safety improvements and reconfigurations. Each scenario shows options for structured parking. The potential sites take advantage of the campus sloping topography to minimize structural costs. They also provide convenient access for visitors to special events as well as similar proximity to the campus core that students, faculty and staff enjoy today. Additional information about campus parking opportunities is included in Section 4, Part B (Circulation Scenarios).

The three scenarios developed explore different ways St. Olaf might activate various parts of campus through strategic placement of potential facility improvements. Each of the scenarios has potential value for consideration as the campus

evolves. Each scenario is flexible and can be adjusted to respond to incremental changes that St. Olaf may experience. All scenarios follow the Physical Planning Principles, maintaining the majority of academic programs in the campus core, strengthening sports and recreation programs below the campus core, and recommending renovations and additions in various configurations. Every scenario also promotes community, a highly residential and liberal arts experience, and a sustainable and resilient institution. Additional campus sustainability and resiliency opportunities can be found in Section 4, Part D (Capital Planning Considerations).

## **A.2** SCENARIO A

In Scenario A (Adding Capacity at Existing Program Locations, see Diagram A.1), the PAC is tucked into Buntrock Commons parking lot (on the site of the old tiered parking lot). This site clusters four campus special events destinations for students and visitors in the heart of the campus (Buntrock, Boe Chapel, Dittman and the new PAC) and allows them to share drop-offs and support ease of catering. After the Theater Building is vacated it can be repurposed and renovated as an accessible art faculty studio space, student collaboration space, and multi-purpose academic space. Makerspace is sited on the campus crossroads between Rolvaag Library and Holland Hall to pull interdisciplinary space into a highly visible location. This space is not dedicated to any single curricular area as well as to place it on an iconic site that can be viewed from the ceremonial campus entry road, St. Olaf Avenue. Few sites remain on the central quad for an academic building. This site has been proposed on previous campus plans. Limited access to large scale parking means it is best suited for buildings with minimum public/visitor parking needs. Due to the siting between Rolvaag Library and Holland Hall, development of this site would need to adhere to setbacks to preserve views to Holland Hall and Rolvaag Memorial Library. Given that the site is situated on the central quad and positioned as a terminus to St. Olaf Avenue, service access to the building would have to be carefully considered. Along with new open space, modestly scaled new student housing buildings line St. Olaf Avenue and Lincoln Street to provide a welcoming corridor to campus. On the west side of campus, the new aquatic center and athletic support space addition extend east to improve accessible connections between the hill and Skoglund Athletic Center.

## **A.3** SCENARIO B

In Scenario B (Special Events Neighborhood, see Diagram A.2), the PAC is situated adjacent to Hall of Music and near Skoglund to create a dedicated area on campus that will host both athletic and artistic special events. This location requires relocating the loop road, although shifting the site north to the Rand Hall parking lot is a potential alternative. Because the PAC is located adjacent to the existing arts buildings, it maintains the existing St. Olaf arts neighborhood. However, this location provides connectivity between arts facilities allowing instruments to be moved easily without leaving a controlled environment. Theater Building renovations provide a location for art faculty studios as well as additional makerspace for active/3D collaboration. The second home of makerspace is Steensland Hall – for quieter/digital collaboration. This anchoring of academic interdisciplinary spaces at both ends of the campus core makes them more visible and broadly available to all departments. As part of this scenario, new student housing and student life spaces are balanced across existing residential communities at Ytterboe Hall, Thorson Hall and south of St. Olaf Avenue, providing an enhanced residential scale to the campus areas as well as a link to the neighborhood east of campus. The Aquatic Center addition is sited to the west to create a new Skoglund entry courtyard and multi-purpose plaza.

## **A.4** SCENARIO C

In Scenario C (Gateway Development, see Diagram A.3), the PAC is located at the base of the hill, at the juncture of St. Olaf Avenue and the Loop Road. This signature location anchors the Northfield Arts Corridor, strengthens the east entry to campus and utilizes existing parking locations already created for sports events. It foregrounds the strong performance-based programs that are part of St. Olaf's heritage. Bringing the PAC to this location also pulls the arts programs across campus, preventing siloed curricular areas from developing on campus. This scenario is the only one which explores the demolition of the Theater Building. Although it represents the founding era of the College, costs to repurpose the building to meet national and state building codes may equal the cost of new construction. Its removal from the Dittman quad will open up views across the campus - physically and visually improving connectivity between Sciences and the Arts. Makerspace is located in a new building on the existing parking lot south of Christiansen, at a location that is visible from the Highway 19 campus entry drive as it intersects the loop road. Likewise, new student housing is grouped near campus entrances to improve the sense of isolation and increase the density of the Hilleboe and Kittelsby Halls and Language House neighborhoods. These sites also have the potential to create pedestrian oriented outdoor spaces that are currently lacking. The Aquatic Center Addition (and repurposed student life/study space in the old natatorium) are highly visible from the loop road and create gateway pedestrian opportunities from the hill.

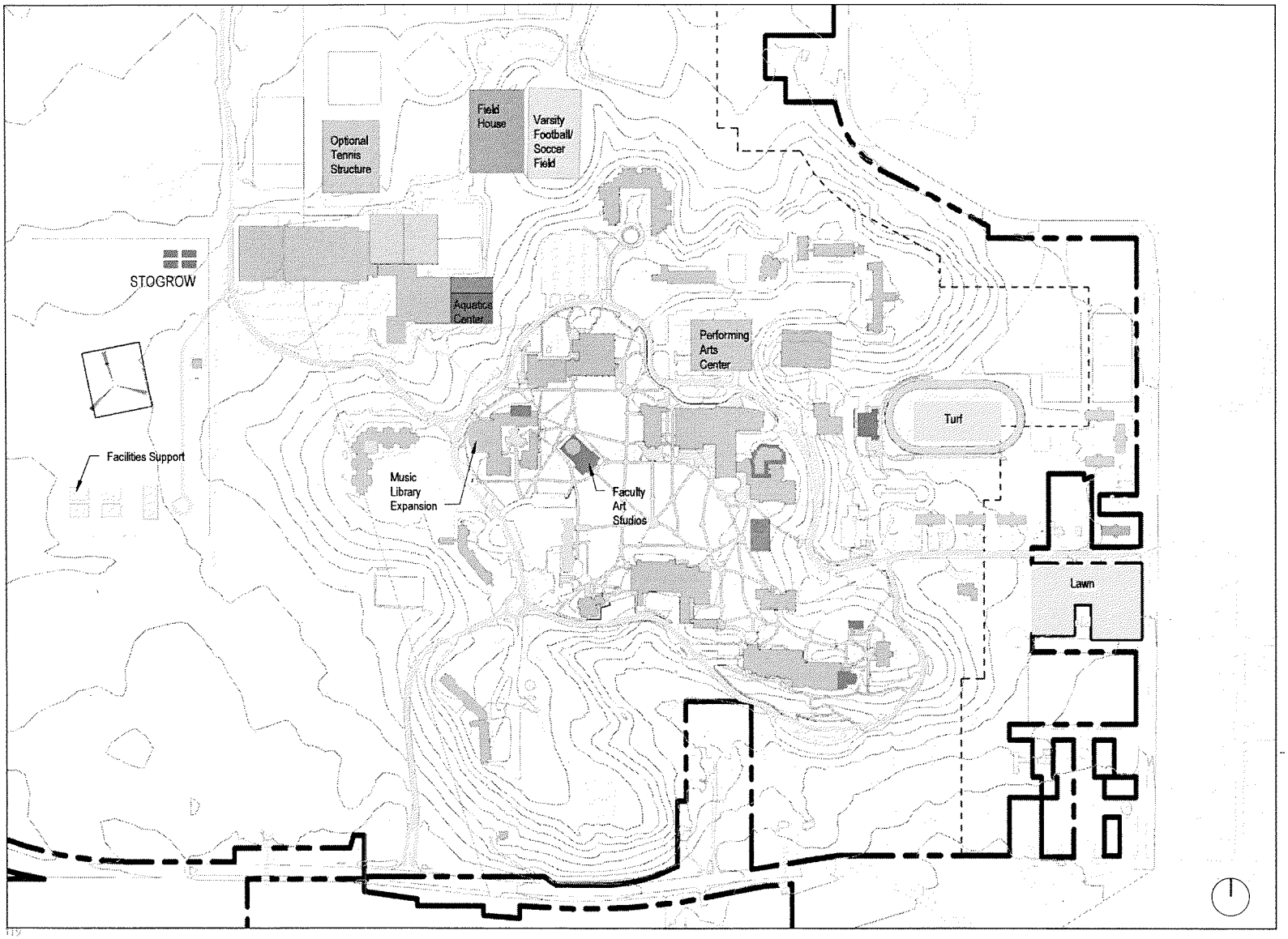



**DIAGRAM A.1**
SCENARIO A: ADDING CAPACITY AT EXISTING PROGRAM LOCATIONS

- Interdisciplinary / Creativity Space
- Performing Arts Center
- Student Housing
- Office / Academic
- Student Life / Study
- Amphitheater
- Optional Tennis Structure
- Sports Field
- Field House
- Athletic Support
- Ice Sheet
- Aquatics Center
- Wetlands / Stormwater Feature
- Parking
- Existing Building
- St. Olaf Property
- College Development District Setback
- Campus Entry / Loop Road
- Pedestrian connection

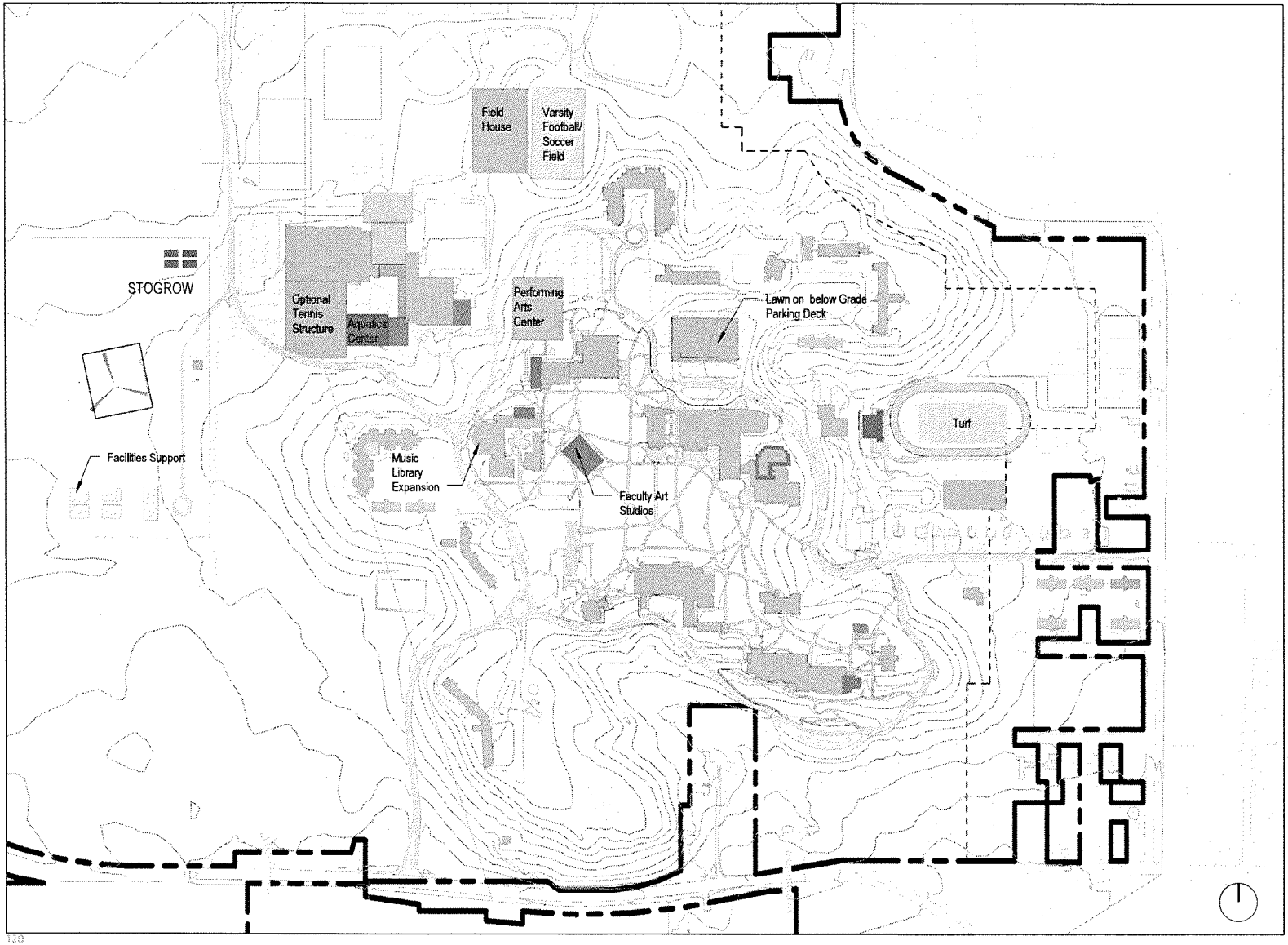
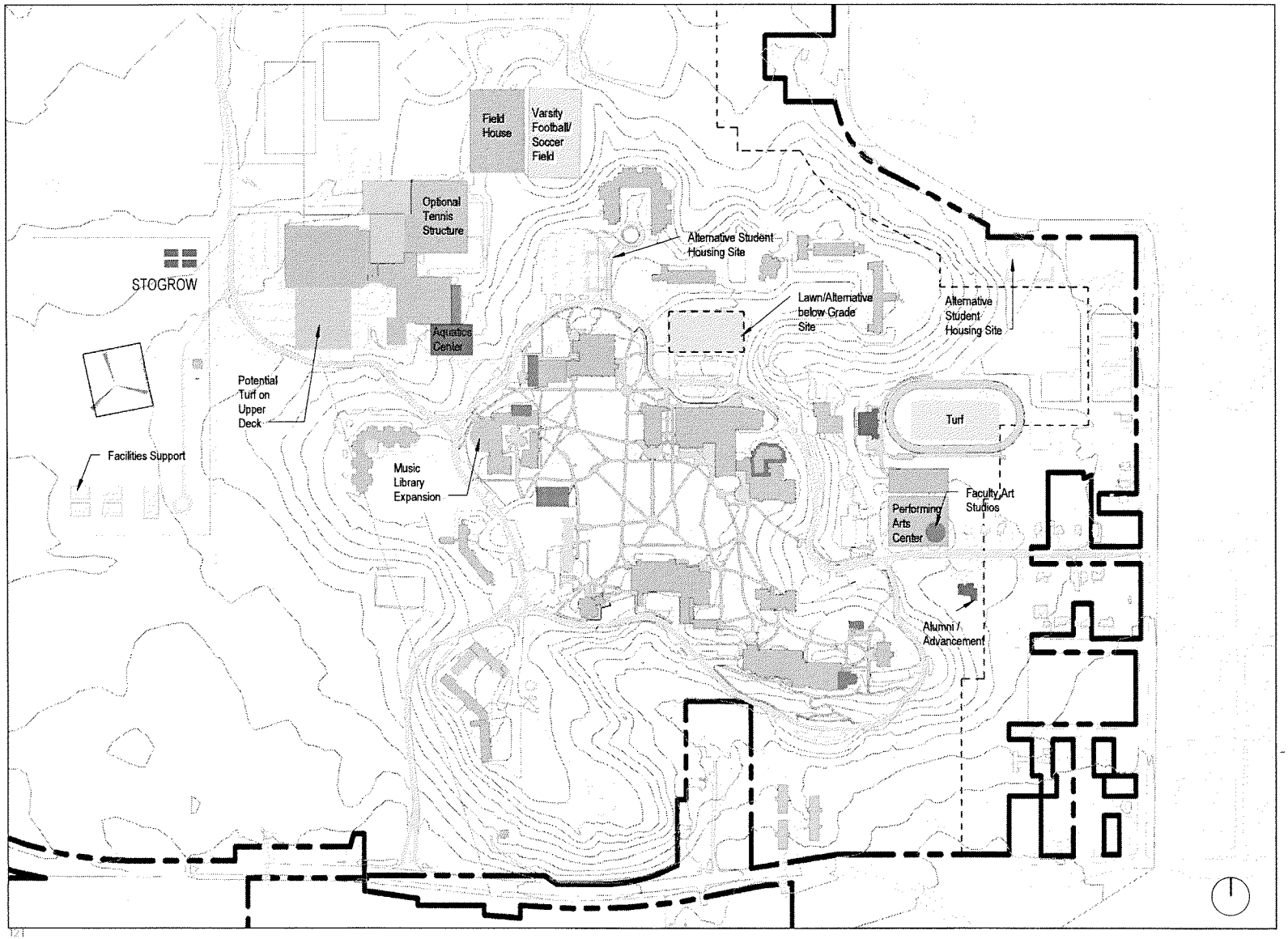



**DIAGRAM A.2**
SCENARIO B: SPECIAL EVENTS NEIGHBORHOOD DEVELOPMENT

- Interdisciplinary / Creativity Space
- Performing Arts Center
- Student Housing
- Office / Academic
- Student Life / Study
- Amphitheater
- Optional Tennis Structure
- Sports Field
- Field House
- Athletic Support
- Ice Sheet
- Aquatics Center
- Wetlands / Stormwater Feature
- Parking
- Existing Building
- St. Olaf Property
- College Development District Setback
- Campus Entry / Loop Road
- Pedestrian connection




**FACILITY DEVELOPMENT**
SCENARIO C: GATEWAY DEVELOPMENT FOCUS

- Interdisciplinary / Creativity Space
- Performing Arts Center
- Student Housing
- Office / Academic
- Student Life / Study
- Amphitheater
- Optional Tennis Structure
- Sports Field
- Field House
- Athletic Support
- Ice Sheet
- Aquatics Center
- Wetlands / Stormwater Feature
- Parking
- Existing Building
- St. Olaf Property
- College Development District Setback
- Campus Entry / Loop Road
- Pedestrian connection

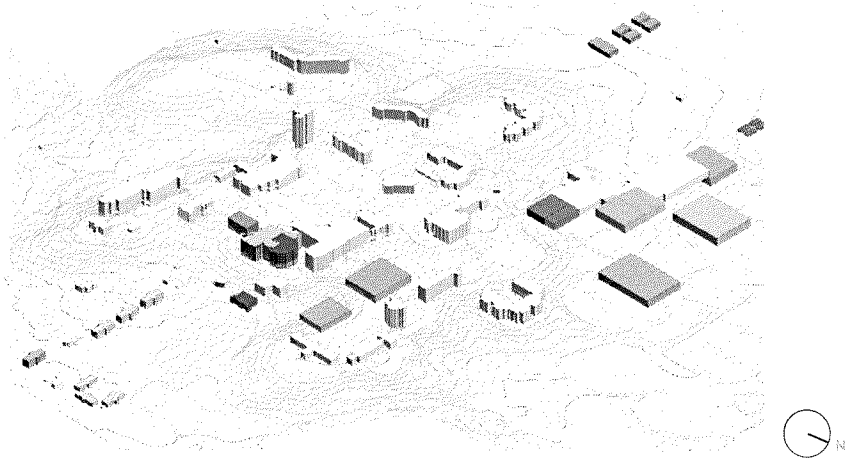


Diagram 4: **Scenario A, Adding Capacity at Existing Program Locations**

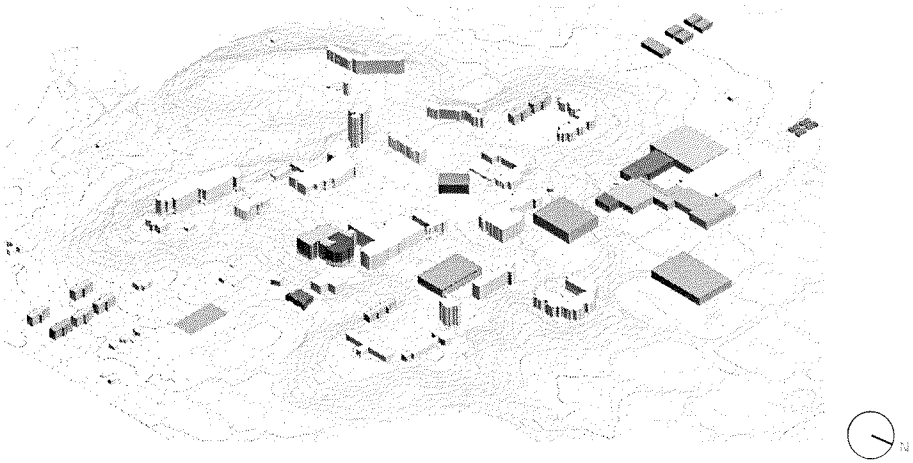


Diagram 5: **Scenario B, Special Events Neighborhood Development**

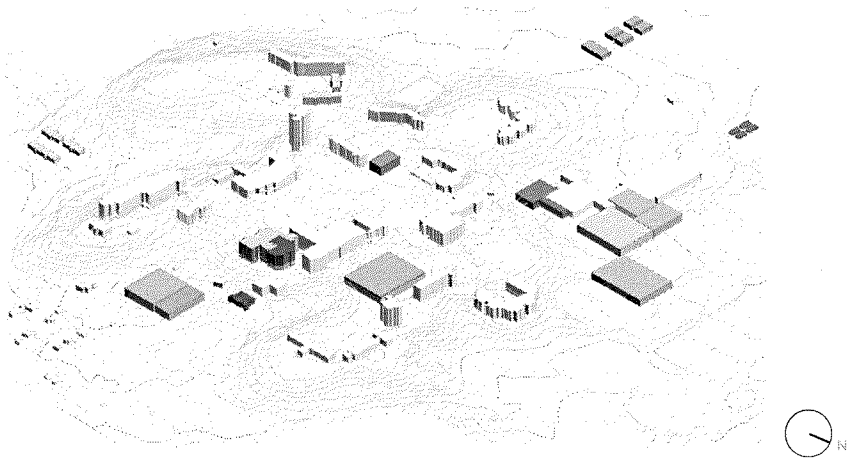


Diagram 6: **Scenario C, Gateway Development Focus**

**A.1.** 3D PERSPECITVE VIEWS OF FACILITY DEVELOPMENT SCENARIOS A, B, C

**ENTRY FROM *ST. OLAF AVENUE***

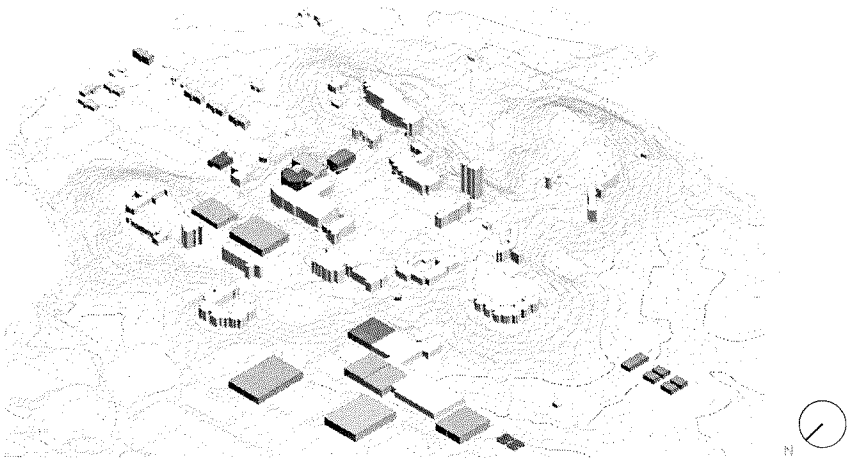


Diagram 7: **Scenario A, Adding Capacity at Existing Program Locations**

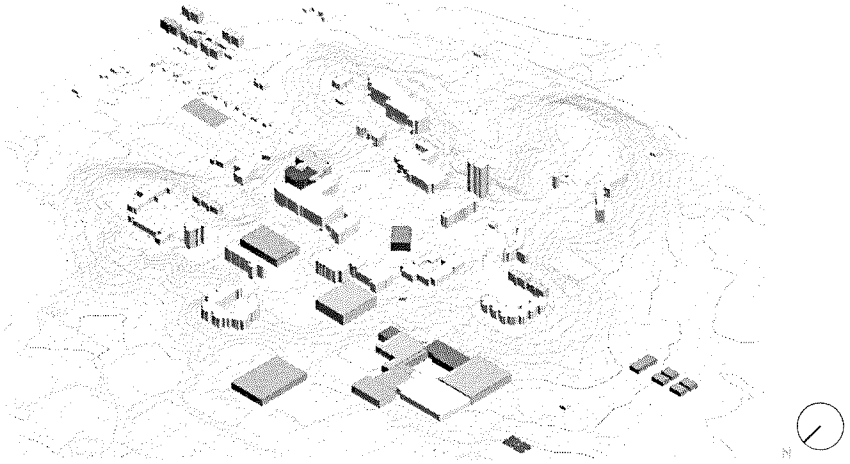


Diagram 8: **Scenario B, Special Events Neighborhood Development**

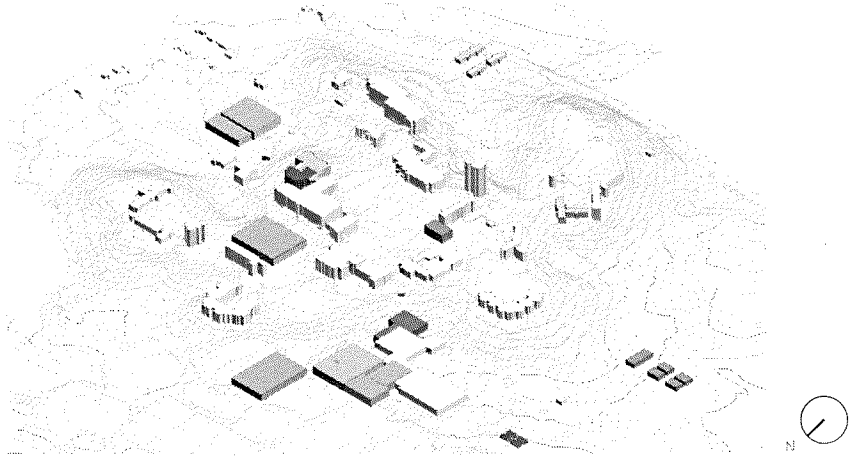


Diagram 9: **Scenario C, Gateway Development Focus**

**A.1.** 3D PERSPECITVE VIEWS OF FACILITY DEVELOPMENT SCENARIOS A, B, C

**ENTRY FROM *NORTH AVENUE* ON ACCESS DRIVE**

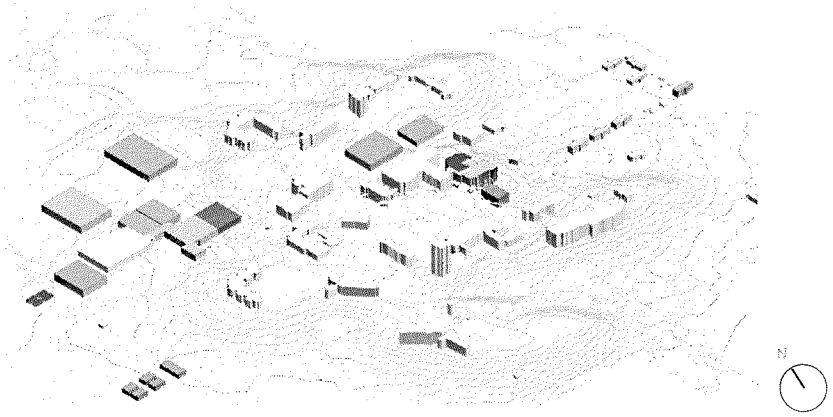


Diagram 10: **Scenario A, Adding Capacity at Existing Program Locations**

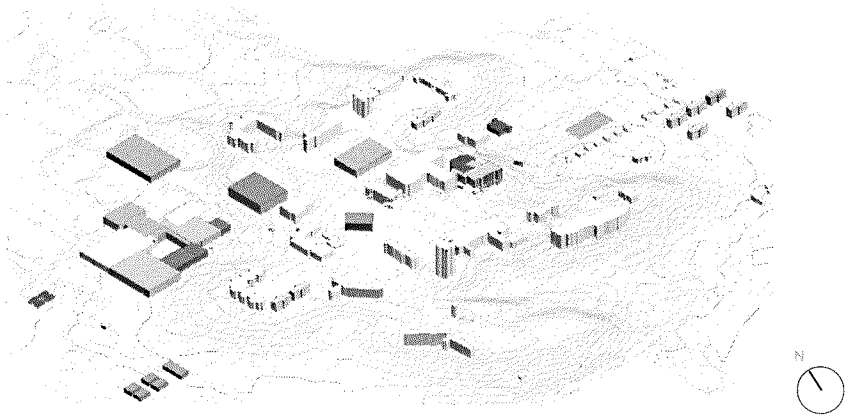


Diagram 11: **Scenario B, Special Events Neighborhood Development**

**A.1.** 3D PERSPECITVE VIEWS OF FACILITY DEVELOPMENT SCENARIOS A, B, C

**ENTRY FROM *HIGHWAY 19***

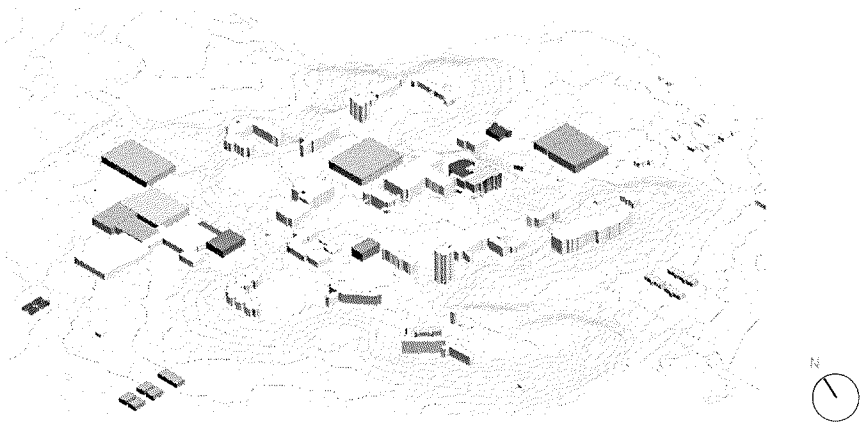


Diagram 12: **Scenario C, Gateway Development Focus**

4

SECTION 4

# FRAMEWORK PLAN DESIGN

## PART B. CIRCULATION SCENARIOS

# B.1 OVERVIEW

### Transportation Opportunities

During the Framework planning process, multiple concepts were developed to enhance the multimodal nature of campus transportation, strengthen universal accessibility, and to improve pedestrian safety. Several considerations were incorporated into three broad scenarios. These included considerations around Highway 19 safety and traffic calming; the planned Cedar Avenue extension; safety and security changes to the existing Loop Road; balanced parking locations for both students and special events; central locations for car/bike sharing and transit hubs; and the need to consider new campus entrances.

### Circulation

Looking forward twenty years, the need to have welcoming entrances that connect the campus and community will be increasingly important. The current two entrances have shortcomings that can be addressed. The Highway 19 entrance, where the majority of visitors from the Twin Cities and the greater region arrive, is situated near a low spot in the terrain, the interior of a curve, and has a blind spot. Additionally, it is near the gas transfer station, an unfortunate welcoming signpost. A roundabout located at this intersection would slow traffic, provide a safer pedestrian and bicycle crossing and an opportunity for additional signage and planting that brand the entrance. Additional suggested improvements include:

- A roundabout at the Eaves Avenue intersection to reduce speeds and promote safer turning movements and crossing
- Redeveloping the road section to an urban street section similar to the Post Foods property to the east
- A reduction of posted speed adjacent to College property
- Pedestrian over- or under-passes or flashing on-grade crossing to more safely connect the north and south sides of Highway 19 in the vicinity of the natural lands trail to Heath Creek and the Language Houses

The St. Olaf Avenue entrance, a pleasant boulevarded street through an historic residential neighborhood, serves faculty, staff, students and visitors coming from Northfield. It can be improved in several ways that include:

- As the College is able to acquire the remaining property west of Lincoln Street, it can plan for desired changes to distinguish the street section from city standards. The large setback of existing homes along St. Olaf Avenue would allow the addition of a landscaped center median.
- A ceremonial gateway at St. Olaf Avenue and Lincoln Street could be constructed to indicate the historic nature of the entry and introduce the campus character to this intersection
- The intersection of St. Olaf Avenue and Highway 3, in the City of Northfield, is not readily understood as the logical turning point toward the campus. Improving this intersection that includes a railroad crossing – as well as integrating traffic signals or other traffic calming on Highway 3 – could address key safety and wayfinding concerns.
- Special banners, planting and signage could be coordinated with the City to indicate the path of the proposed Arts Corridor and improve wayfinding for visitors

The improvement of the existing gravel drive from North Avenue to the Skoglund parking lot would improve connectivity between the campus and potential College partners along North Avenue. Perhaps more important, it would also enhance the public safety and access to special athletic and performing arts events during the academic year. Given the planned improvements to athletic venues and the anticipated public use of an ice sheet (if developed), two means of access to Skoglund Parking Lot as well as the Skoglund facilities would provide an improved visitor experience and required emergency egress, especially during winter weather. The improved drive would:

- direct visitors to parking lots on the periphery of the hill, supporting the College's planning principle to provide a pedestrian-oriented campus core.
- provide more direct access to the center of the campus core, nearer to Boe Chapel, Buntrock Commons, Dittman Center and two of the three potential PAC sites.
- provide easy access by grounds staff as they come and go from relocated support facilities near the wind turbine

The loop road configuration was also carefully examined. The Framework Plan recognizes that the loop road has many advantages:

- allowing visitors to glimpse the heart of the campus and providing a distinct recruiting tool
- ensuring ADA access and service access to all buildings.
- organizing campus land use, separating residence halls from academic functions.

If the campus accommodates the potential infill construction indicated in the Facility Use scenarios over the next twenty years, optional loop road configurations will benefit St. Olaf's future. For example, the new PAC, given the current program size, may require realigning the current road bed. Relocating the loop road is not new or unusual for the College. Buntrock Commons and Regents Hall are the most recent examples of facility development that triggered changes to campus circulation and reconfiguration of campus roadways. Relocating the Loop Road from its current location can have several benefits, creating the following new features:

- Building sites where roadways once existed
- Useful open space for academic and student use
- New low-traffic or vehicle-free pedestrian corridors
- Parking locations that balance accessibility with servicing

### Parking

One of the Campus Planning Principles is to create a pedestrian core by removing the majority of parking to the periphery of the campus. Other factors may combine to redistribute parking across the campus. The PAC, improved athletic venues, and other building development, will change visitor destinations. Continued changes to transportation technology and the sharing economy will impact parking demands. New access roads will change the logical locations for parking lots. Current safety concerns about parking on the loop road will result in eventual elimination of these parking stalls. Finally, many desirable sites for building and open space development that are currently occupied by parking lots will be eliminated.

The proposed scenarios illustrate how parking could be redistributed across campus as the loop road is reconfigured while maintaining the access to the same number of parking stalls. Anticipating the advent of electric self-driving vehicles, the scenarios do not envision an increase to the total number of parking stalls. The total amount of parking will not be increased beyond what is necessary to replace parking displaced by new construction, to meet accessibility requirements at public venues and to accommodate a reasonable number of visitor spaces for events that overlap the academic day (when faculty and staff parking stalls will be occupied).

As land becomes increasingly precious on the hill and fewer appropriate building infill sites remain, a key transportation element to consider is the addition of structured parking to the campus. Because the cost per stall to construct and maintain a parking deck is typically at least ten times more expensive than a surface lot, it is critical to plan carefully for this possibility. The topography of the campus provides many locations that minimize the cost of construction – allowing for simple decks that can be accessed from various points on a slope. These locations can also accommodate pedestrian activity and drop-offs on their rooftop – as plazas, planted lawns, or artificial turf. The concepts were narrowed to locations that provide the most overall value and benefit to the College. These locations have been integrated into each of the three facility and circulation scenarios.

### Scenarios

The scenario diagrams show the progressive shifting of the Loop Road to the north and west as well as the additional interior drop-off roads that would be required. The success of the Framework Plan and campus mobility does not require any

of the parking and Loop Road revisions to be made in a particular timeframe. It is intended that decisions regarding parking structures and roadway realignments be made when campus facility and financial planning indicate that they are needed. The resulting, flexible strategies include:

- Scenario A - Improve Existing Loop Road (testing structured parking on the hillside southwest of Thorson Hall and west of Tostrud)
- Scenario B - Expand Existing Loop Road (testing structured parking at the current Buntrock lot and South of Manitou Field
- Scenario C - Reposition Loop Road and Gateways (testing structured parking south of Tostrud and adjacent to the PAC on St. Olaf Avenue)

## **B.2** SCENARIO A

Scenario A (Improve Existing Loop Road) explores traffic calming strategies and open space improvements that can be incorporated in any other scenario. A series of locations for raised pedestrian crossings are identified. The power plant road would continue to be enhanced as a campus drive – specially to accommodate additional traffic to either the PAC or a supporting multi-level parking deck. The intersection of the North Avenue access drive and the Loop Road should be studied for re-engineering to provide a traffic circle. The Skoglund fields access drive should be realigned to simplify movement and support visitor access, drop-off and servicing for the new fieldhouse. If a second ice sheet and new tennis center is developed, the existing courts could be redesigned to create a parking plaza. If additional parking is required near Skoglund and Tostrud, the existing parking lot on the west side of the complex can be converted into a two-level deck.

## **B.3** SCENARIO B

Scenario B (Expand Existing Loop Road) is similar to Scenario A, except that it strategically shifts the loop road to improve pedestrian safety, create additional building sites, and has the advantage of improving vistas on and off the hill along its route. It relocates the loop road behind Hoyme Hall, using a western, rather than eastern, approach from Highway 19 to the campus core. This new alignment intersects with the Hilleboe and Kittelsby Halls service drive and skirts the hill above the old tennis courts at the eastern edge of Hoyme Woods. It rejoins the current loop road alignment west of Christiansen Hall – providing a safer pedestrian zone for Hilleboe and Kittelsby Halls and Hoyme Hall residents as they flow around Mellby Hall into the campus core. The road bed would ideally be constructed as an access drive – similar to the North Avenue entry drive – to minimize the impact on slopes and natural vegetation and habitat as well as blend into the natural landscape. The existing Highway 19 entry drive would continue straight-ahead toward the current Admissions parking lot and continue its route around Tomson and Regents Halls.

Another opportunity to realign the loop road exists at the Rand Hall parking lot. If the PAC is sited north of HOM and Dittman Center, the roadbed would ideally shift to enlarge the pedestrian core and shift thru-traffic around the new facility. Careful design consideration would have to be given to maintaining mature trees, working with topography to maintain accessible slopes, and minimizing the need for retaining walls in this area.

If a multi-level parking deck is constructed beneath the Buntrock parking lot, it would ideally have a landscaped roof to provide useful open space and a signature quad for nearby resident students and the College as a whole. The existing loop road in front of Dittman, Buntrock and Boe Chapel would be reconfigured as a slow-speed drop-off and service lane. If additional parking were required, a two-level deck could be provided south of Manitou Field in the same area where surface parking is currently located.

## **B.4** SCENARIO C

Scenario C (Re-position Loop Road and Gateways) tests a more expansive change to the Loop Road than Scenario B. It shows the long-term potential and impacts of relocating the Loop Road as far to the north and west of the campus core as the College feels is feasible.. Drop-off and service lanes would still be provided to all residential and academic facilities but many building sites and open spaces would become available. The possibility of adding a second access drive from Second Street could also be considered. This would provide a better bicycle, pedestrian and service access below Regents Hall, connect with downtown Northfield and wonderful vistas of Old Main Hill and Norway Valley.

Scenario C optimizes access below the western side of the hill and integrates the new athletics and facilities support buildings. Its alignment has been located in areas that are primarily, access lanes, lawn or agricultural fields to avoid disturbing College forest restoration, sports fields and other open space. It links the Highway 19 entry drive with the North Avenue access drive, enhances the pedestrian nature of the campus core, and removes the general flow of visitors from the campus core. As visitors approach the campus from the west, from either Highway 19 or North Avenue, they can see their general destination, but are guided to perimeter parking locations or to designated drop-offs.

The Skoglund parking lot can support this realignment by being converted into a two-level deck. Dedicated visitor and student parking can be located in a multi-level deck that is integrated with the PAC, south of Manitou Field Lot. Visitors can easily be directed by signage. Accessible, short-term, and targeted visitor parking can remain in the first bay of the Buntrock parking lot – permitting the majority of the currently paved area to be converted to signature open space.

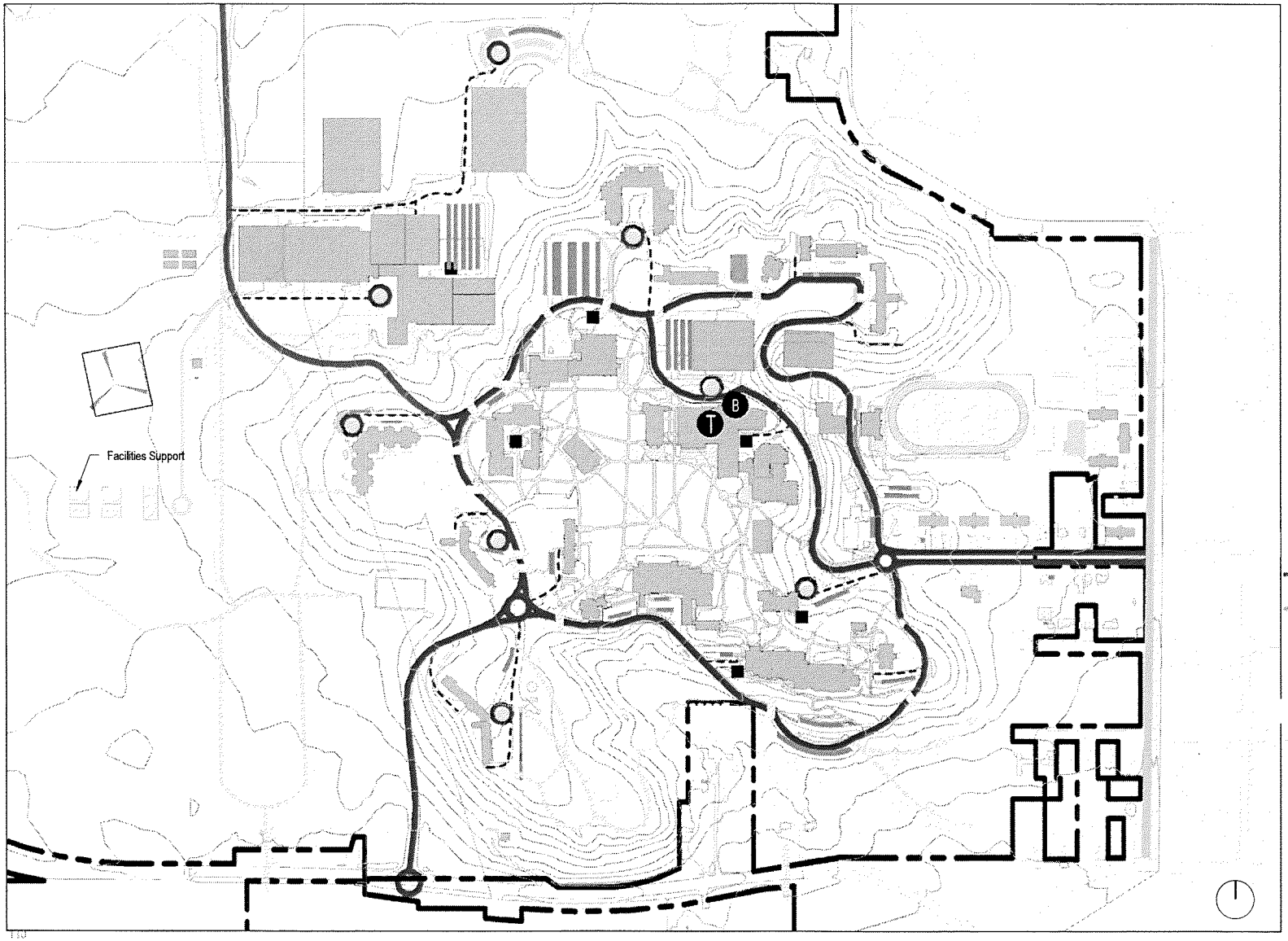



**DIAGRAM B.1**
SCENARIO A:
IMPROVE EXISTING
LOOP ROAD

- Drop Off
- Service Node
- Transit Hub
- Bicycle Hub
- Accessible / Reserved Parking
- Faculty / Staff / Visitor Parking
- Student Parking
- Commuter Student Parking
- Evening / Weekend Parking
- Loop Road
- Service Route
- St. Olaf Property
- Optional Parking Deck
- Enhanced Pedestrian Connection
- Trail
- Access Drive
- Controlled Intersection/ Roundabout

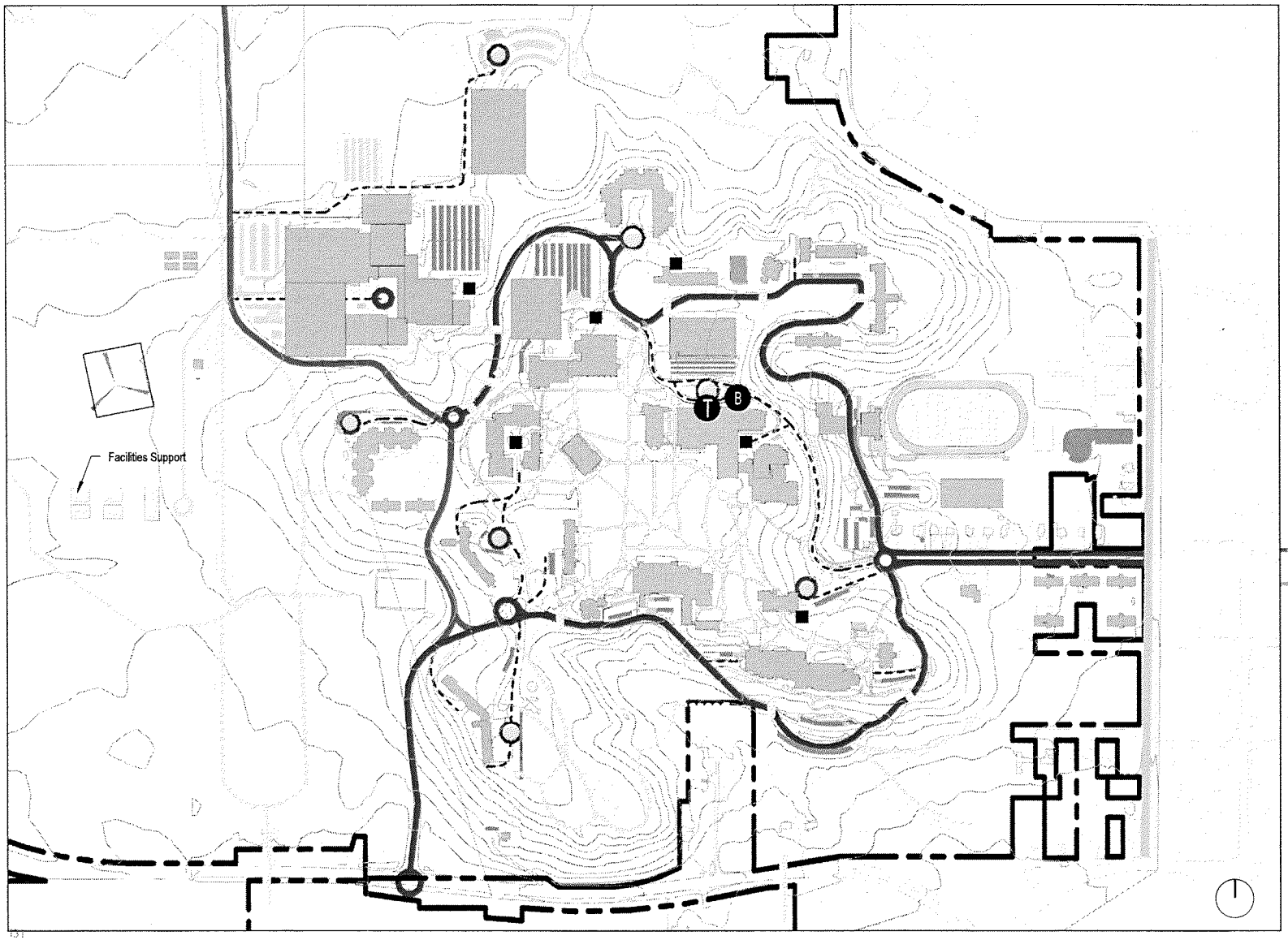



**DIAGRAM B.2**
SCENARIO B: EXPAND
EXISTING LOOP ROAD

- Drop Off
- Service Node
- Transit Hub
- Bicycle Hub
- Accessible / Reserved Parking
- Faculty / Staff / Visitor Parking
- Student Parking
- Commuter Student Parking
- Evening / Weekend Parking
- Loop Road
- Service Route
- St. Olaf Property
- Optional Parking Deck
- Enhanced Pedestrian Connection
- Trail
- Access Drive
- Controlled Intersection/ Roundabout

150' 300'

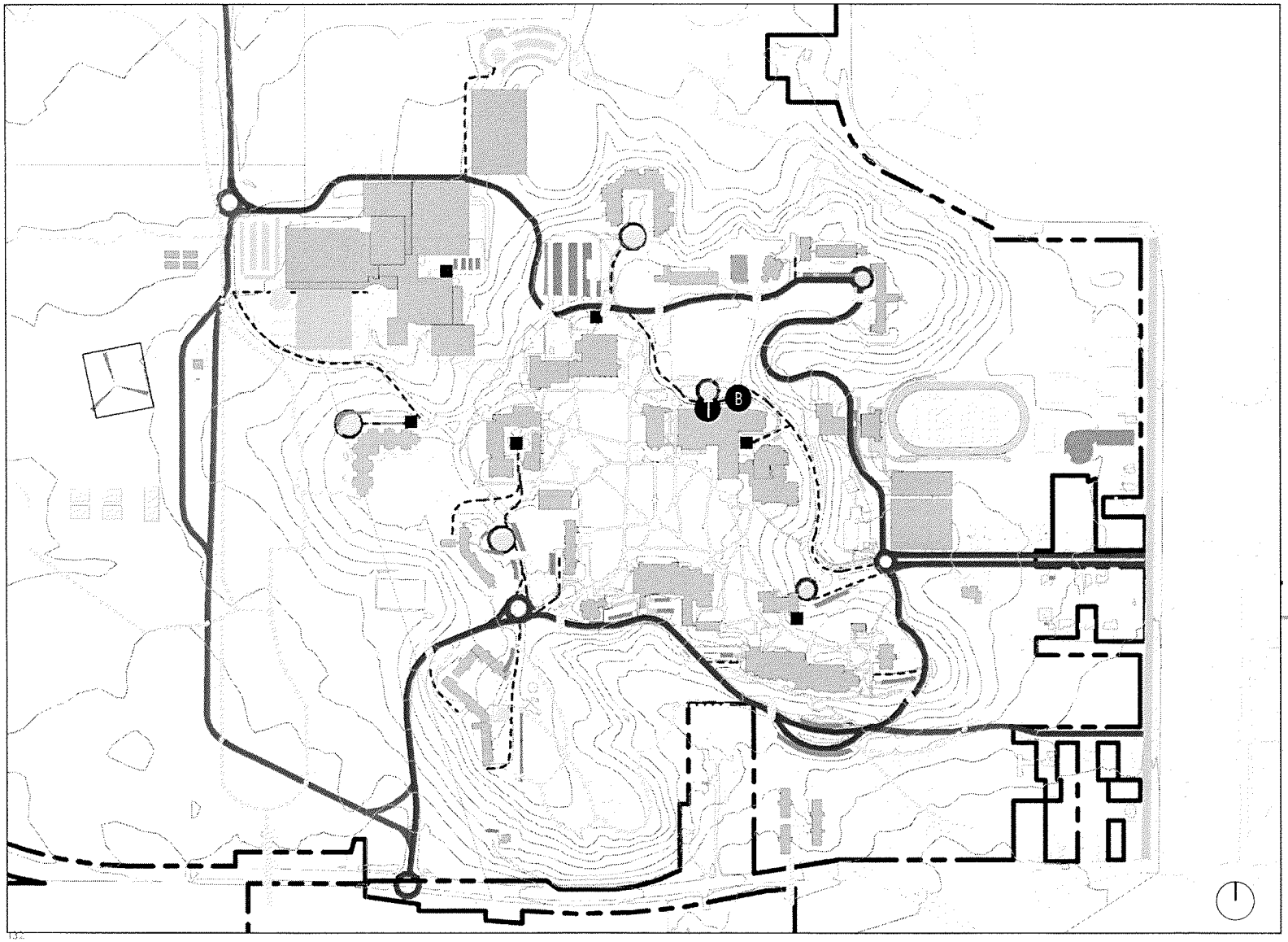



**DIAGRAM B.3**
SCENARIO C:
RE-POSITION
EXISTING LOOP ROAD

- Drop Off
- Service Node
- Transit Hub
- Bicycle Hub
- Accessible / Reserved Parking
- Faculty / Staff / Visitor Parking
- Student Parking
- Commuter Student Parking
- Evening / Weekend Parking
- Loop Road
- Service Route
- St. Olaf Property
- Optional Parking Deck
- Enhanced Pedestrian Connection
- Trail
- Access Drive
- Controlled Intersection/ Roundabout

150' 300'

4

SECTION 4

# FRAMEWORK PLAN DESIGN

## PART C. LAND USE SCENARIOS

# C.1 OVERVIEW

Two scenarios have been developed in order to maximize the potential of the lands owned by St. Olaf that surround the campus core. These scenarios provide recommendations for land use, land disposition, future development, and natural vegetation. Both scenarios strive to strike a balance between preserving the rural setting of the college and the potential need to accommodate new opportunities for revenue generation, connecting with the adjacent residential and downtown Northfield community, and plan reasonable and responsible growth. The twenty-year time frame for these scenarios is purposefully long range to provide flexibility for the College to meet unanticipated risks and opportunities as well as provide St. Olaf with a proactive position from which to influence the various government bodies that are responsible for planning adjacent development.

Both scenarios focus on peripheral campus lands north of North Avenue, south of Highway 19, and along Eaves Avenue on the campus's western perimeter. Closer to the campus core, there also are planned new land uses adjacent to the existing wind turbine. All development scenarios are contingent on their financial viability and benefit to St. Olaf's mission, vision, values, and strategic planning.

The location of several land uses are similar in both scenarios:

- Ole Village is envisioned as a multi-generational residential community targeted especially to active seniors with a connection or affinity with the College. Outside partners would be responsible for developing, maintaining and leasing the land from the College. Its location at the northwest quadrant of the intersection of North Avenue and Falk/Eveleth Avenue could allow it to take advantage of close proximity to the Northfield Hospital, existing apartments, nursing facilities, parks, and churches. The land reserved for Ole Village is large enough to accommodate a variety of residential development styles, multiple phases (depending on demand), and the preservation of ecological assets, such as wetlands, changes in topography, and natural vegetation.
- A sizable solar garden has been planned for lands just west of the Northfield Hospital. Research and planning has already occurred with respect to this location and determined that its size and topographic orientation would maximize the energy potential of a solar array. Outside partners will be responsible for developing, maintaining, and leasing the land from the College.
- Area for a smaller College operated solar garden is reserved immediately south of the existing wind turbine.
- A new location for facilities support has been identified in the area south of the existing wind turbine. Since staff and equipment would no longer have to cross heavily traveled Highway 19, this location will provide increased safety and convenience. Proximity to the existing wind turbine and the campus core (while maintaining a screened distance from overlooking residence halls) would also be convenient and improve efficiency.
- Area for natural lands and STOGROW program fields, support structures and instructional space is reserved immediately north of the existing wind turbine.
- Northfield Community Hospital can expand, if needed, on its existing parcel of land that is currently leased from St. Olaf.

Despite a high degree of similarity between the two scenarios, there are important differences that underscore the flexibility the college has in responding to new partnership and revenue generation opportunities. Planned land uses differ north of the hospital and Ole Village, land on the west side of Eaves Avenue, and land south of Highway 19.

# C.2 SCENARIO A

Scenario A (East Perimeter Development Infill), tests flexible land development that connects with and extends existing residential and commercial development on the east side of the campus. Flexible development could also be accommodated north and west of these parcels.

- The land north of Northfield Hospital and Ole Village could be a mixture of residential development, natural vegetation and community gardens.
- The area west of Eaves Avenue and Northfield Hospital could be guided for resilient and flexible uses that could include business and agriculture. The continued agricultural use of this land in the near term would be appropriate given the presence of the James Farm and existing STOGROW activities.
- An Innovation Park west of Armstrong Road and north of Industrial Drive – and within walking distance of Regents Hall - could contain a mixture of uses intended to facilitate partnerships, applied learning, and internships between St. Olaf faculty/staff/students and business partners and entrepreneurs. It could be a place for ideas generated at the College to reach the broader community. This location could leverage its proximity to Highway 19, the campus core, existing commercial and industrial uses, and residents of Northfield.

# C.3 SCENARIO B

In Scenario B (North Avenue Development Corridor), the focus over time would be to expand partnership opportunities adjacent to the existing Northfield Community Hospital and solar garden to create sustainable development along North Avenue and Eaves Avenue.

- An Innovation Park west of the hospital could connect with the City's planned business park. Targeted toward entrepreneurial or start-up businesses that benefit from proximity to the College's distinctive curriculum, this location would benefit from proximity to the hospital, solar garden, the Cedar Avenue Extension further along North Avenue, and a more direct connection to the growing suburban areas of Dakota County. Overtime, this development could expand along Eaves Avenue.
- As a counterpoint to this intensive land use, the area north of the hospital and south of Highway 19 could be considered for other flexible uses – including agriculture, commercial nursery expansion, and other appropriate uses that respected existing natural wetlands, waterways and forests.

**DIAGRAM C.1**
DISPOSITION LAND

- Long Term Lease Agreement
- Potential Acquisition
- Campus Core & Natural Lands
- Potential Flexible Development
- Nature Vegetation
- Waterways/ Floodplain

400 1200'

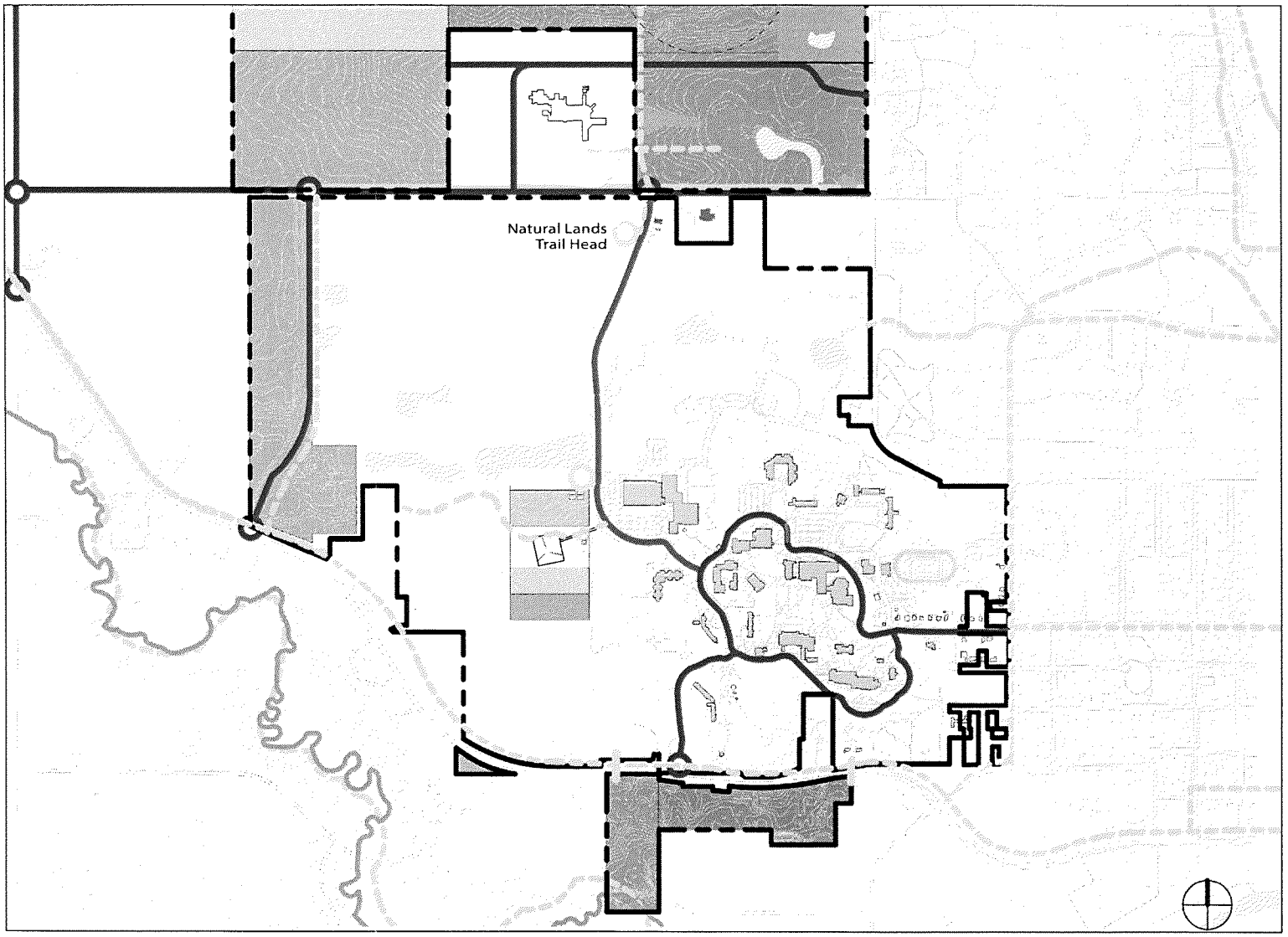
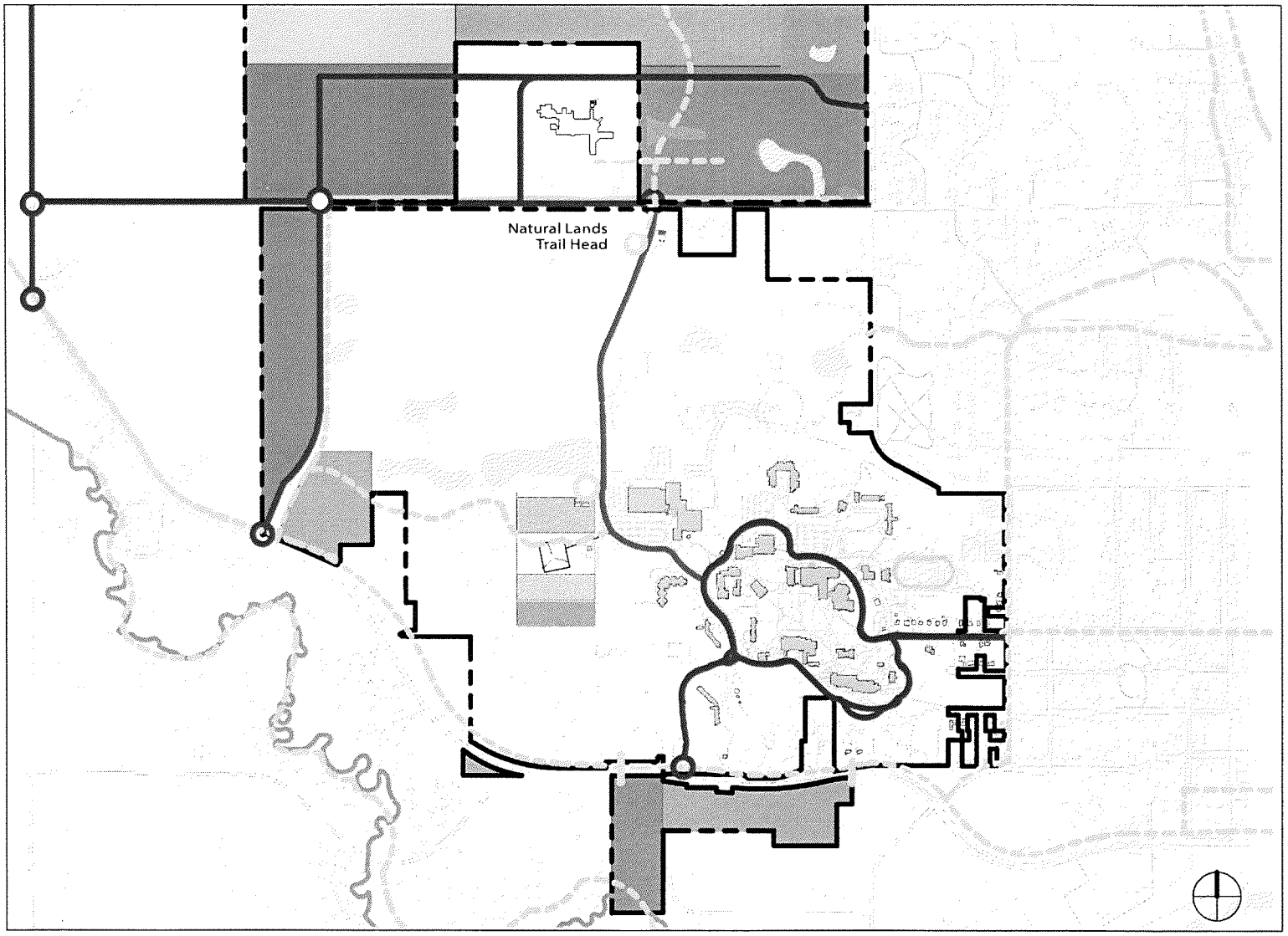



**DIAGRAM C.2**
SCENARIO A:
EAST PERIMETER
DEVELOPMENT INFILL

- Ole Village
- Innovation Park
- Solar Garden
- Natural Vegetation
- STOGROW
- Flexible Use
- Facilities Support
- Wetlands / Water Feature
- Access Road
- Access Drive
- Enhanced Pedestrian Crossing
- Multi-Purpose Trail
- Existing Building
- Trail Head
- Controlled Intersection/ Roundabout

400' 1,000'




**LAND USE**
SCENARIO B
NORTH AVENUE
DEVELOPMENT
CORRIDOR

- Ole Village
- Innovation Park
- Solar Garden
- Natural Vegetation
- STOGROW
- Flexible Use
- Facilities Support
- Wetlands / Water Feature
- Access Road
- Access Drive
- Enhanced Pedestrian Crossing
- Multi-Purpose Trail
- Existing Building
- Trail Head
- Controlled Intersection/ Roundabout

400' 1200'

# **C.4** OPEN SPACE OPPORTUNITIES

The St. Olaf campus open space framework illustrated in Figure C.2. identifies opportunities to improve the year-round pedestrian, recreational, educational, and inspirational experience of the campus. Flexible locations are identified for:

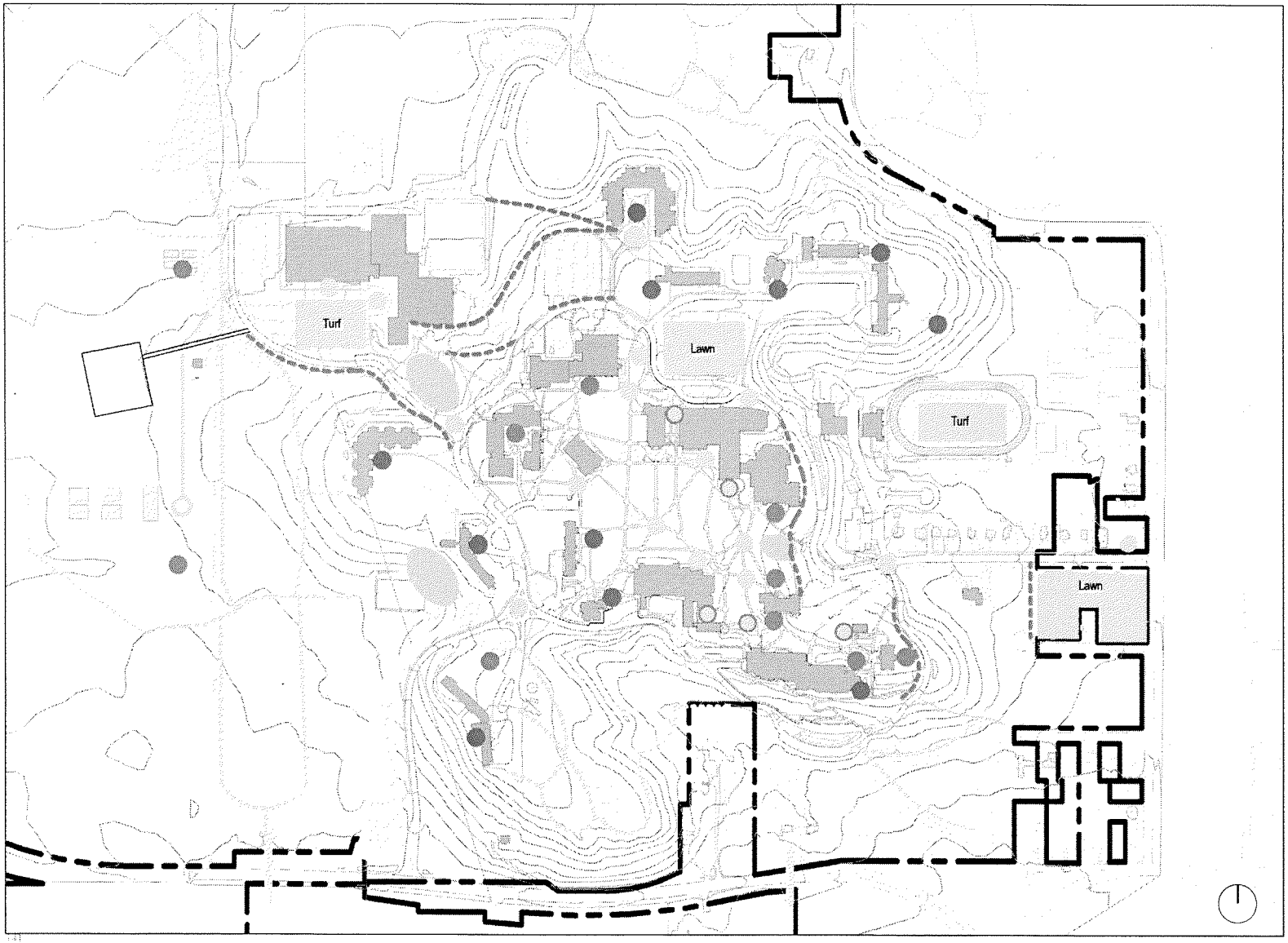
- "Missing Walkways" – sited primarily along the loop road, where students are currently walking in the street. Locations along steep slopes that reflect student "short cuts" may require stairs.
- Public Art – sited at campus nodes and pedestrian crossroads to encourage lingering and passing conversation; sited outside key campus facilities to link building identity with academic programs inside; intended to showcase campus faculty and student artists as well as supplement the existing installations in the central quad; expanding the "story-telling" of campus heritage, diversity, inclusivity and environmental stewardship. Key opportunities to improve campus wayfinding and place-making also exist at vehicular intersections and prominent viewsheds of multi-purpose open spaces.
- Outdoor Study Hubs – includes charging stations and tables at outdoor seating areas near residence halls for 4 to 8 students; moveable solar shelters that are evolving on other campuses could also be explored
- Outdoor Classrooms – gathering areas that are large enough for 12 to 20 seats sited and designed to encourage faculty to step outside academic buildings to find comfortable and convenient locations for seminar discussions
- Campus Amphitheater – providing an outdoor venue for amplified performances and events; flexible seating that provides accessible, structured seating for 100 as well as expandable landscape seating on a lawn for up to 1,000.
- Lawns / Turf for Sports – outdoor fields should continue to be sited adjacent to existing sports facilities and adjacent to student housing to support the increasing popularity of informal and intramural team sports. Lawn is most appropriate in residential areas while turf should also be included in sports precincts where is can be securely maintained and take advantage of lighting for extended hours.
- Stormwater Management Features - green infrastructure opportunities that strengthen institutional image and identity, serve academic purposes, and support student life activities; landscape structures that facilitate ecological and stormwater management best practices throughout campus; areas required to meet sustainability goals to manage stormwater on site and provide open space amenities as well as outdoor classrooms for learning opportunities
- Existing Trails - and walkways throughout campus - provide opportunities for informal recreation, contemplation and education; connections between the paved campus walkways and the unpaved trails should be strengthened; an accessible route off the campus to the natural lands should be identified.

The 2016 Framework Plan assumes that over the next twenty years the campus core and the central quad will continue to be cared for in a manner which preserves and enhances St. Olaf's landscape legacy and groves of mature trees. Site improvements related to the redesign and reinvestment in the campus landscape surrounding Steensland Hall, Holland Hall, and Skoglund Athletic Center should provide opportunities for:

- Re-establishment of planting and paving that reinforces the original St. Olaf historic buildings
- An appropriate setting for campus entrances
- An enhanced campus perimeter aesthetic
- The integration of campus landscape standards into the pedestrian environment
- An overall campus setting that complements the iconic central quad and natural lands with new trees and landscape while replacing plants and paving that are in poor condition

Open space investment should also continue throughout the campus. Underutilized outdoor gathering spaces, courtyards and plazas identified in Section 2 should be improved while providing needed additional multi-purpose open space. Likewise, the potential demolition of the Theater Building – and the expansion of the central quad should provide students with additional, valuable outdoor space

Connecting student destinations throughout campus, main pedestrian corridors, should be designed to continue the character of recently constructed pathways. Student research also identified a desire for more pedestrian-scaled lighting, and improved winter landscaping. Improved east-west pedestrian corridors from Lincoln Street to the campus core to Skoglund and the natural lands should augment connectivity between the campus and the community. The proposed Arts Corridor is a prime example of this opportunity.




## C.4 OPEN SPACE OPPORTUNITIES

- Outdoor Classroom (seating for up to 20)
- Public Art
- Study Hub (seating for 4-8)
- Enhanced Pedestrian Crossing
- Enhanced Storm Water Management
- Recreational Turf / Lawn
- Existing Building
- Existing Trail
- Proposed Walking Path
- Potential Amphitheater

150' 300'

4

SECTION 4

# FRAMEWORK PLAN DESIGN

## PART D. CAPITAL PLANNING CONSIDERATIONS

D.1 Overview

D.2 Resiliency + Sustainability

# D.1 OVERVIEW

The 2016 Framework Plan is specifically charged with integrating capital planning and campus improvement opportunities for buildings, circulation, parking, infrastructure and open space. The plan strives to be flexible by documenting solutions which can be mixed and matched and implemented in the sequence as funding opportunities arise rather than determining a single implementation strategy or defining a targeted phasing path. The proposed resiliency and sustainability ideas outlined in this section create a flexible framework for development at St. Olaf over the next 20 years.

Phasing of projects will be based on Strategic Plan goals and objectives, with consideration given to the time it may take to identify funding sources and the urgency of deferred maintenance. The projects include those that are either currently under programming, design or construction, address programmatic needs that impact student success, recruitment and retention, and are likely to be funded in the near future. Other identified projects may need to be completed as companion campus improvements that allow for related projects to be completed. Projects that provide supportive campus open space, circulation and replacement parking, or utility work to provide sustainable infrastructure include the following initiatives, listed in no particular order:

## Facility Projects

- Aquatics Center
- Art Faculty studio space
- Highway 19 Facilities relocations
- Interdisciplinary / Creativity space
- Larson Hall renovation
- Mellby Hall renovation
- Multipurpose Fieldhouse
- Multipurpose Performing Arts Center (PAC)
- Music Library expansion
- New / Replacement student housing
- Rolvaag Library renovations
- Science Library Nursing renovation
- Skoglund ice sheet / 2nd ice sheet
- Skoglund renovations
- Special collections relocation
- Steensland renovation
- Theater Building repurposing / Demolition
- Tom Porter Hall renovations
- Urness Recital Hall renovations

## Open Space

- Amphitheater
- Missing walkways
- Outdoor study hubs (4-8 seats)
- Outdoor classrooms (20 seats)
- Public Art
- Relocated football field

## Infrastructure

- Balanced / Reassigned Parking
- Bike / Car share hubs
- Buntrock Commons parking relocation
- Distributed Energy Generation
- Highway 19 Crossing
- Loop Road traffic calming / enhanced crosswalks
- Loop Road relocation / expanded pedestrian core
- Natural lands trailhead
- Phased Residence Hall improvements
- Solar garden
- STOGROW Expansion
- Stormwater management features
- Transit hub



# D.2 RESILIENCY + SUSTAINABILITY

Sustainability goals and objectives have been incorporated into College planning over the past two decades. Sustainability has also emerged as an important driver for applied learning and student organizations - making it an important part of what makes St. Olaf nationally attractive to students and new faculty.

The most popular definition of sustainability is that from the United Nations Brundtland Report of 1987, which states that "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

## Current Actions In-Place

Current Resiliency and Sustainability actions at St. Olaf include the preservation of St. Olaf's natural lands/vegetation, renewable energy production, emergency back-up power capacity for the campus, energy conservation, stormwater management, carbon emission reduction, and local purchasing of food products.

## Supportive Opportunities

The following opportunity areas represent the diverse ways that St.Olaf can support and further develop environmental and social sustainability. Each opportunity area speaks to opportunities on campus, along the campus perimeter, and opportunities to support sustainability goals in and with the greater community. Diagrams D.1, D.2, and D.3 provide further detail.

### *Community Economic Hubs + Nodes*

Maintaining a vibrant socio-economic ecology around the campus is of critical importance to maintaining St. Olaf as a nationally-desirable student destination. Increasing the synergies between local community economic hubs, nodes, and regional amenities can strengthen the collective socio-economic health of St. Olaf College, Northfield, and Carleton College, as well as build relationships with revenue generating partners. Having three significant community economic hubs can help maintain the diversity of thinking and a constructive level of competition. The synergies can also allow the College to offer a more diverse set of learning opportunities and experiences to students.

*Campus core opportunities*

Existing Community Economic Hubs include:

- St. Olaf College
- Downtown Northfield
- Carleton College

Existing and Potential Community Economic Nodes include:

1. Solar garden
2. Innovation Park
3. Hospital
4. Ole Village

1. St. Olaf wind turbine 2. St.Olaf natural lands


5. James Farm
6. St. Olaf Arts District
7. Knecht's
8. Commercial Expansion
9. Downtown Northfield
10. Weitz Center
11. Carleton College

*Community supportive opportunities*

- St. Olaf can support the economic health of Northfield in two key ways: providing demand for local economic outputs and providing economic inputs by offering land for lease and/or facilitating the new development that benefits the local economy.

### *Arts Corridor*

The proposed Northfield Arts Corridor is a way to leverage the individual creative contributions and productivity of St. Olaf, the City and Carleton College (shown in relation to Community Economic Nodes 6, 9, 10 and 11 in Diagram D.3 on page 150). The following are two opportunity areas under consideration.

*Campus core opportunities*

- The corridor can support the interdisciplinary programs of the College by increasing their linkage to resident artists and elevating the collective identity of the community.

*Campus perimeter opportunities*

- Stitch St. Olaf, The City, and Carleton College together with a designated corridor which could contain bike and walking paths along with banners, a signature streetscape, sculpture and other art installations. The Arts Corridor would be identified with wayfinding elements and integrated with bicycle pedestrian paths and the proposed campus multimodal centers.

### *Multimodal Circulation + Connectivity*

Increasing the connectivity between the hill, the larger campus, community economic nodes, and regional amenities can support important socio-economic synergies between St. Olaf, the City and other institutions.

*Campus core opportunities:*

- Multimodal transportation locations can be used to physically link the economic nodes located on campus and College lands. This includes the integration of bicycle paths and trails into the street network to more easily link students, faculty and staff with office, retail, and recreation destinations.

*Campus perimeter opportunities:*

- Supporting the off-campus development of the proposed Northfield Green Corridor - and extending a similar circulation network through the College - would ensure bicycle and pedestrian connectivity between the campus core, potential development of the campus perimeter, and corresponding community destinations and amenities.
- Electric car and bike sharing would be co-located with the multimodal centers as well as other convenient locations at the perimeter of the campus such as the east entrance of Holland Hall, south of Regents Hall, and at Mellby Hall. Other perimeter locations that could be developed over time include the St. Olaf and Lincoln Street student neighborhood, Highway 19 partners, and at the Hospital.

*Community supportive opportunities:*

Key opportunities for multimodal hubs and transportations centers on College land are shown at the following locations:

- Innovation Park
- Ole Village
- Skoglund Athletic Center
- Buntrock Commons

Key opportunities for similar functions off-campus are suggested at the following locations:

- City of Northfield
- The pedestrian bridge and paths at the Cannon River
- Bike / pedestrian path running under highway 19 south to the Cannon River
- Carleton College
- Northfield Green Corridor System
- Controlled Intersections at Highway 3

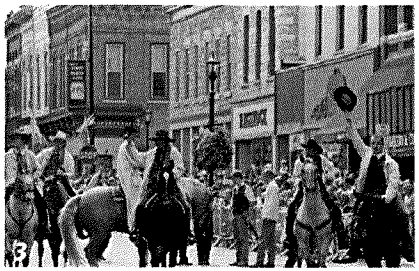
### *Energy Production + Storage*

St. Olaf has a goal to become carbon neutral. Towards this, the College is considering the following opportunities in an effort to transition to 100% renewable energy sources.

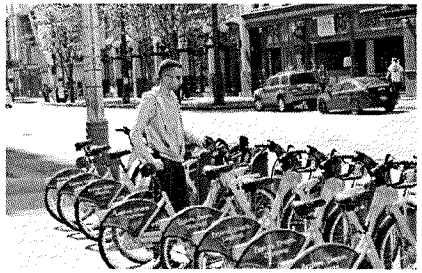
*Campus core opportunities:*

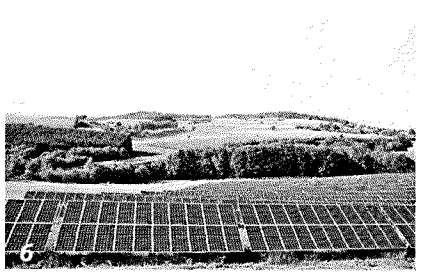
- Existing buildings and future projects should be reviewed for their opportunity to support green roofs, solar hot water and photovoltaics. Green roofs can provide localized stormwater and extreme rain management along with habitat for birds and pollinators. As buildings are constructed or renovated, their mechanical systems can be converted from steam to hot water to conserve energy at the point of use (the campus main steam system should be maintained as it is a high-quality system). Solar hot water can be used to supplement heating needs at the building scale or provide domestic hot water. Roof-top solar electric can be used in locations not suitable for solar hot water.
- Natural Gas used for the central steam plant is the next non-renewable energy source identified for substitution by renewable sources. Biomass is not considered a strong option due to the large quantity required and the limited availability of biomass in the area. Land required to produce the biomass would be significant. Hydrogen produced by electrolysis (using renewably generated electricity) may

3. Defeat of Jesse James Days in downtown Northfield
4. City parklette program precedent on main street



5. Bike-share precedent
6. Solar field/garden precedent





become economically viable in the future. When viability is reached, additional wind or photovoltaic generation on college land could be used to produce this fuel. Fuels for heat are the main source of CO2 emissions for St. Olaf going forward, and renewable options should continue to be explored as they emerge.

*Campus perimeter opportunities:*

- The existing wind turbine and the planned solar gardens would represent a continued effort towards the carbon neutral goal envisioned for the entire campus.
- A proposed northern turbine in the vicinity of the radio tower could feed electricity to the campus. If the hydrogen is transported by truck, the north turbine could be used for hydrogen production.

### *Environmental Stewardship*

The College property that is currently leased for agriculture presents multiple opportunities for incorporating forms of sustainable and resilient operations. All of the options assume that the land would continue to be managed and capitalized by entities other than St. Olaf for the economic benefit of the College.

*Campus core opportunities:*

- The College composting initiative is point of pride for many students. Its location on the North Avenue access drive can be used to celebrate St. Olaf's commitment to environmental stewardship. Appropriate signage and landscaping can be used to lightly screen the composting center without completely hiding it. Parking for the facility can be shared with a public trailhead for the natural lands in the same area.
- The campus capability to handle increasing levels of rainfall should be monitored - with the expectation that continuing modifications may be required in the next two decades. Stormwater management infrastructure has been upgraded to handle localized flooding from run-off. Southern Minnesota has experienced three 1000 year rains in the last decade and climate change projections for the region predict ever-increasing intensity for extreme rain events.
- Modifications should continue to be made to better manage stormwater meet the College's goal of infiltrating stormwater into the aquifer.

*Campus perimeter opportunities*

- The College's student run organic farm (STOGROW) will be relocated north of the existing wind turbine. There are no plans to expand STOGROW in the foreseeable future but a flexible area for related activities is included in the Framework Plan.

*Community supportive opportunities*

- Currently the lands include drain tiles to rapidly remove rainwater away from the fields. Outfall points of the drain tiles should be sculpted to capture the water and filter it into the aquifer. This could be coupled with low-impact, non-toxic agricultural methods that protect water quality and the aquifer. Long-term agriculture opportunities for this land include continuing with a land-lease program while maintaining a row crops similar to what is currently planted. Over time, there may be opportunities to move towards intensive agriculture techniques through community supported agricultural activities or other organizations to provide food crops that directly benefit the College cafeteria and residents. This could be coupled with a food hub (capitalized and operated by others) to process and store food and storage for use during times of crisis (food stores would be rotated to ensure not economic loss).

7. St.Olaf composting initiative: All food waste (100 percent) from the college's food services operation — preparation, production, line, and plate — is collected and composted in an on-campus in-vessel system.

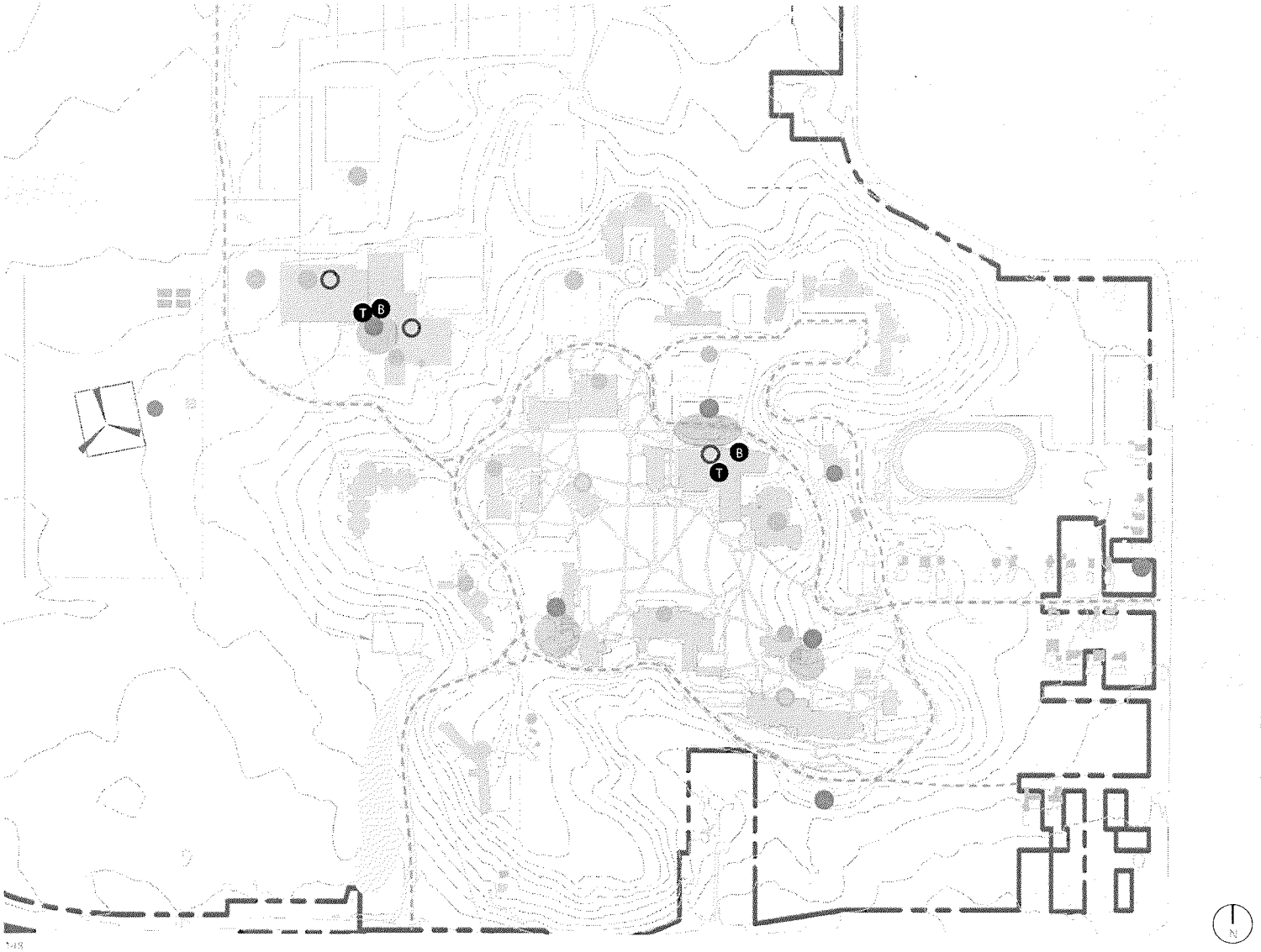



**DIAGRAM D.1**
RESILIENCY +
SUSTAINABILITY

CAMPUS CORE OPPORTUNITIES

- College Bike Path
- Wind Turbine
- Electric Car + Bike Sharing
- Transit Hub
- Bicycle Hub
- Water to Hydrogen Production + Storage
- Solar Hot Water / PV
- Extended Crisis Supply Locations
- Emergency Shelter + Supply Locations
- Waterbodies + Extreme Rain / Aquifer Management
- Green Roofs (pending evalution)
- Gateway Art
- Emergency Intranet Communication Hubs (Locations TBD)

150' 300'

Scale: 1" = 300'

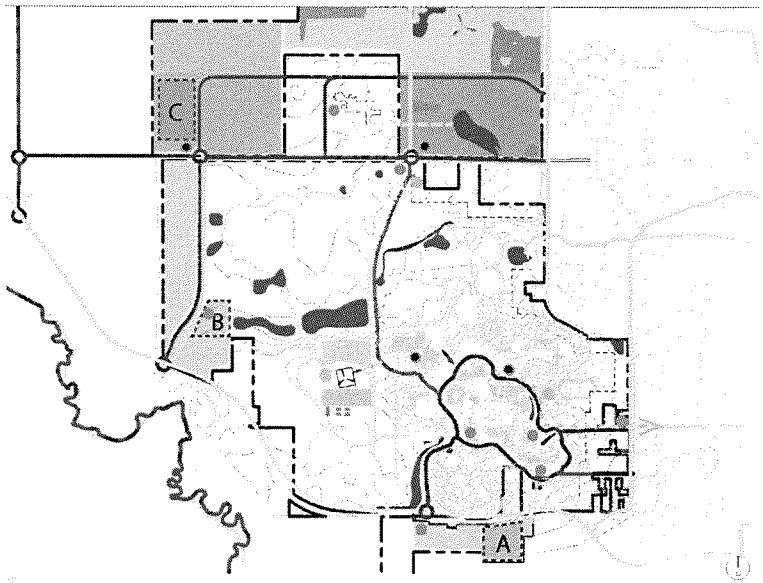
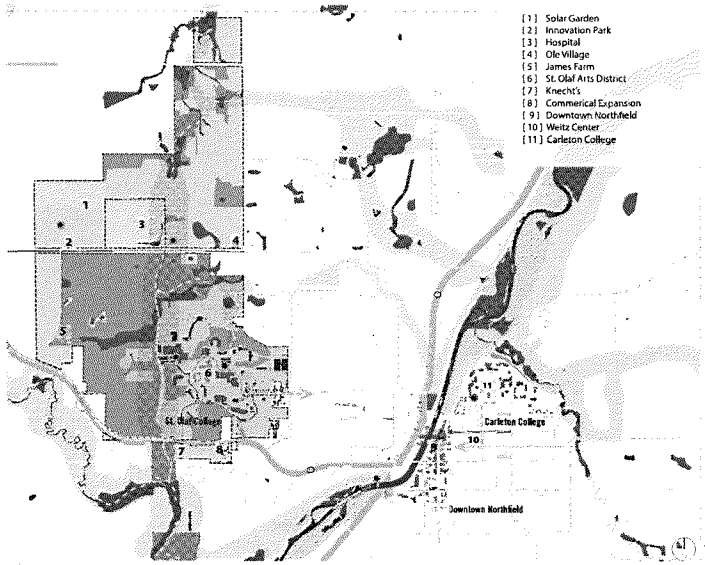



**DIAGRAM D.2**
RESILIENCY + SUSTAINABILITY

CAMPUS PERIMETER OPPORTUNITIES

- Arts Corridor (route + extents TBD)
- Walking Path
- Community Bike Path
- Access Road
- Green Access Drive
- Waterbodies/ Stormwater Management
- Ole Village*
- Innovation Park*
- Natural Habitat
- Flexible Use
- Solar Garden*
- Economic Node*
- Wind Turbine
- Electric Car + Bike Sharing
- Multimodal Center
- Composting
- Water to Hydrogen Production + Storage
- Controlled Intersection/ Roundabout

* Land Lease or Partnership: Physical improvements not paid for by St. Olaf




[1] Solar Garden
[2] Innovation Park
[3] Hospital
[4] Ole Village
[5] James Farm
[6] St. Olaf Arts District
[7] Knecht's
[8] Commerical Expansion
[9] Downtown Northfield
[10] Weitz Center
[11] Carleton College

**DIAGRAM D.3**
RESILIENCY + SUSTAINABILITY

COMMUNITY SUPPORTIVE OPPORTUNITIES

- Arts Corridor (route + extents TBD)
- Community Bike Path
- Highway Corridor
- Waterbodies
- 100 Year Floodplain
- Ole Village*
- Innovation Park*
- Natural Habitat
- Flexible Use
- Solar Garden*
- Northfield Green Corridor
- Wind Turbine
- Multimodal Center
- Water to Hydrogen Production + Storage
- Community Economic Hub
- Community Economic Node

* Land lease or Partnership: Physical improvements not paid for by St. Olaf

## EXHIBIT C

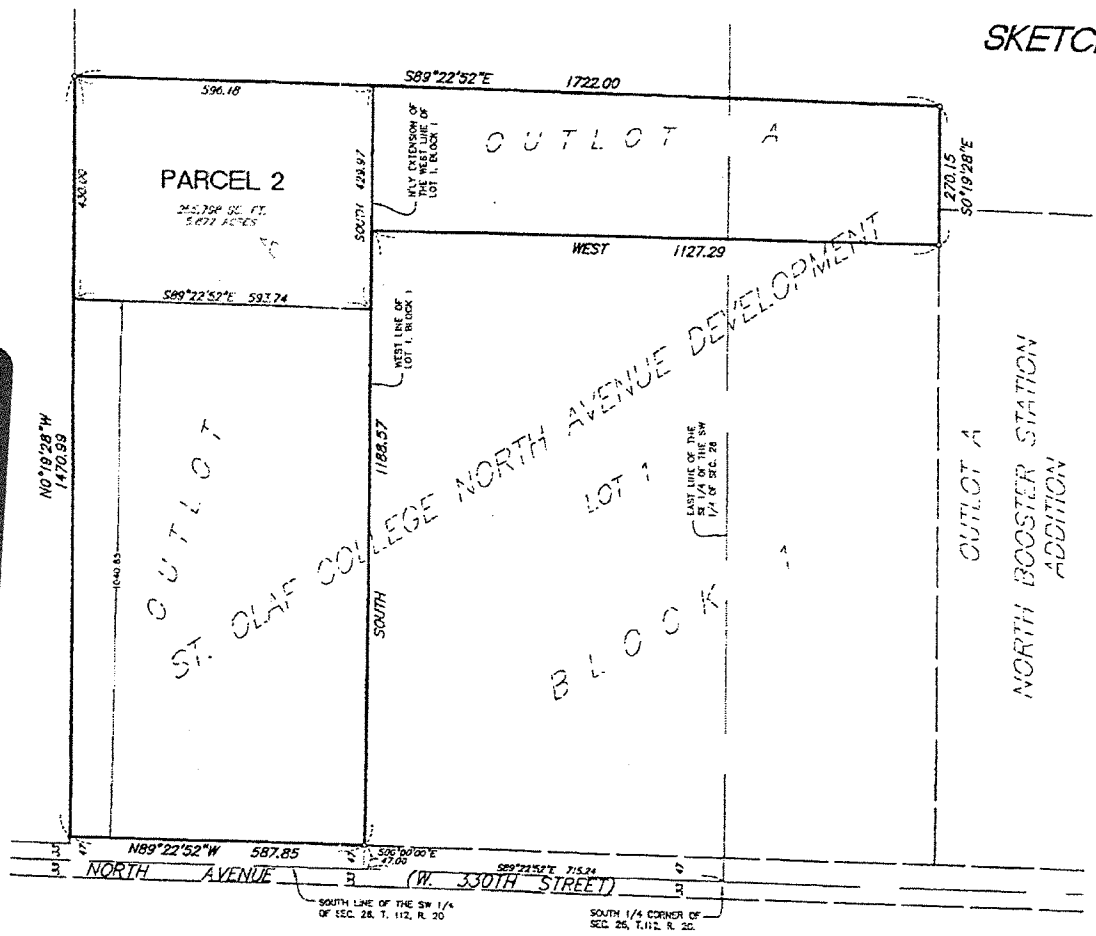
## PARCEL 2 DESCRIPTION

**That part of Outlot A, ST. OLAF COLLEGE NORTH AVENUE DEVELOPMENT, according to the recorded plat thereof, Dakota County, Minnesota, lying North of the South 1040.85 feet of said Outlot A and West of the of the West line of Lot 1, Block 1, ST. OLAF COLLEGE NORTH AVENUE DEVELOPMENT, and its northerly extension.**

# EXHIBIT C-1

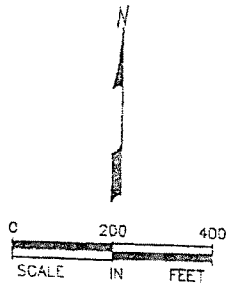
# PARCEL 2 DEPICTION

# SKETCH DESCRIPTION OF PARCEL 2




## DESCRIPTION OF PARCEL 2

That part of Outlot A, ST. OLAF COLLEGE NORTH AVENUE DEVELOPMENT, according to the recorded plat thereof, Dakota County, Minnesota, lying north of the south 1040.85 feet of said Outlot A and west of the west line of Lot 1, Block 1, said ST. OLAF COLLEGE NORTH AVENUE DEVELOPMENT, and its northerly extension.




I hereby certify that this sketch, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this 31st day of January, 2018

SUNDE LAND SURVEYING, LLC.

By: Arlee J. Carlson

Arlee J. Carlson, P.L.S. Minn. Lic. No. 44900

SUNDE LAND SURVEYING
9001 East Bloomington Freeway (35W) • Suite 11E
Bloomington, Minnesota 55420-3435
952-881-2455 (Fax: 952-888-9526)
www.sunde.com

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tabbies EXHIBIT C-1

## EXHIBIT D

## MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE, made and entered into this __ day of _____, 2018, by and between ST. OLAF COLLEGE, a Minnesota non-profit corporation ("Lessor") and BENEDICTINE LIVING COMMUNITY OF NORTHFIELD LLC, a Minnesota non-profit limited liability company ("Lessee").

W I T N E S S E T H:

WHEREAS, Lessor and Lessee have entered into that certain Lease dated _____, 2018, (the "Lease"); and

WHEREAS, the parties hereto desire to file this Memorandum of Lease for record in the records of the County Recorder of Dakota County, Minnesota, to provide record notice of the Lease and the terms and conditions contained therein with respect to the Demised Premises (as hereinafter defined).

NOW, THEREFORE, for and in consideration of the mutual covenants contained herein and in the Lease, Lessor and Lessee hereby agree as follows:

1. Premises. The Demised Premises consists of the tract of land located in the City of Northfield, Dakota County, Minnesota more particularly described in Exhibit A, attached hereto and incorporated herein together with all appurtenances, easements and rights of way related thereto including all improvements now or hereafter existing thereon (collectively the "Demised Premises").

2. Term. The term of the Lease is ninety-nine (99) years.

3. Incorporation of Lease. The provisions set forth in the Lease are hereby incorporated into this Memorandum of Lease as if set out in full herein. In the event of any conflict or inconsistency between the terms of this Memorandum of Lease and the terms of the Lease, the terms of the Lease shall govern and control for all purposes.

4. Option. The Lease includes an Option to purchase the Demised Premises in favor of Lessee. The Option is intended to run with and burden the Demised Premises and the interests of the Lessor, its successors and assigns therein and is not a mere personal right. The Lessee shall be entitled to the specific enforcement of the Option against the Lessor and any successors or assigns of the Lessor.

5. Defined Terms. All capitalized terms and words of art which are used but not defined herein shall have the same respective meaning designated for such terms and words of art in the Lease.

IN WITNESS WHEREOF, Lessor and Lessee have hereunto set their hands as of the day and year first above written.

ST. OLAF COLLEGE

By: _____
David R. Anderson, its President

By: _____
Janet K. Hanson, its Vice President and
Chief Financial Officer

STATE OF MINNESOTA )
) ss.
COUNTY OF _____ )

The foregoing instrument was acknowledged before me this ___ day of _____, 20__, by David R. Anderson and Janet K. Hanson, the President and Vice President/Chief Financial Officer, respectively, of St. Olaf College, a Minnesota non-profit corporation, on behalf of said corporation.

_____
Notary Public

BENEDICTINE LIVING COMMUNITY OF NORTHFIELD LLC, a Minnesota non-profit limited liability company

By: _____
_____ its _____

STATE OF MINNESOTA )
) ss.
COUNTY OF _____ )

The foregoing instrument was acknowledged before me this ___ day of _____, 20__, by _____, the _____ of Benedictine Living Community of Northfield LLC, a Minnesota non-profit limited liability company, on behalf of said company.

_____
Notary Public

This instrument was drafted by:

Fryberger, Buchanan, Smith & Frederick, P.A.
302 W. Superior Street, Ste. 700
Duluth, MN 55802
(218) 722-0861
DDM/13967-8